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DEMOCRACY AND PUBLIC HEALTH ADMINISTRATION.*

CHARLES J. HASTINGS, M. D., C. M., L. R. C. P. I.

Address of the President, American Public Health Association, December 9, 1918.

I WISH to express to my colleagues, in the fullest degree, my appreciation of the very high compliment they have paid my country, and incidentally the great honor they have conferred on me, in electing me President of this association, and I take this opportunity to express my appreciation of the most valuable coöperation and assistance of the members of the Executive Committee, the Board of Directors, and our worthy Secretary. Unitedly, we have endeavored to visualize the future of the American Public Health Association.

As my subject indicates, I am going to depart from the well-trodden paths of presidential addresses. Presidential addresses are not very popular. They are not usually good drawing cards. The most outstanding exception to this, however, was the address delivered by President Wilson in April, 1917, when your nation declared war on Germany. That address was most highly appreciated by every intelligent individual in the Allied nations.

The fact that war has been foremost in our minds for over four years, even though the glorious consummation so devoutly hoped for has been attained, justifies, on this occasion, a brief reference to our allied relationship.

The conditions under which our nations entered this great conflict were practically the same. These were fittingly expressed by the Right Honorable Mr. Asquith, then Prime Minister of Great Britain, in an address to the British House of Commons, immediately after the declaration of war, in which he said, "No nation ever entered into any great controversy, and this is the greatest that history will ever record, with a clearer conscience and a stronger conviction that it was fighting, not for aggression, not for personal gain, but in defence of principle, the maintenance of which is vital to the civilization of the world." When the German Imperial Chancellor learned of Great Britain's intention, he, in a rage, said, "Just for one word 'neutrality,' just for a scrap of paper, Great Britain is going to make war on a kindred nation." "I wish you to understand," replied the British Ambassador, "it is a matter of life and death, for the honor of Great Britain, that she should keep her solemn engagement to do her utmost to defend Belgium's neutrality if attacked." A Scrap of Paper!

* Reprints of this address by Doctor Hastings, may be secured by addressing the office of the JOURNAL.

The Imperial Chancellor could not understand that when Great Britain puts her name to a treaty, that she signs it with blood. The German Chancellor well understood that war is hell, but he found it convenient to forget what Dante taught, that the very heart of hell is reserved for those who are traitors to their friends.

When the United States entered this war, she did so in defence of principles. When the United States signs a treaty, she too signs it with blood. I think it was Victor Hugo who said, "A fixed principle is like a fixed star—the darker the night, the brighter it shines."

The reason for this similarity of action of the British Empire and the United States is obvious. The acorns produced by the stalwart oaks of the British Isles, carefully conveyed across the Atlantic and planted on the hillsides of the New England States, removed from the shadow and protecting influences of the mother oak and consequently forced to stand the various tempests and vicissitudes of life, developed the kind of man timber that would not submit to autocratic dictates and coercion, but revolted. In doing so, you built more wisely than you knew, for by that Revolutionary war, you made it possible for the remaining dominions of the Empire beyond the seas to obtain by evolution what you then obtained by revolution. Unfortunately one hears the War of Independence only too frequently referred to as "the war between the United States and Great Britain," instead of "Great Britain's civil war," British fighting against British; a family quarrel.

The conflict that we have just passed through has afforded an opportunity for us to better understand each other.

And now that, in the phraseology of Shakespeare, the black cloud of war that has been lowering upon our housetops for the past four years or more has been dispersed, and that our bruised arms have been once more (and I hope for all time), hung up for monuments, and our stern alarms changed to merry meetings, it remains for our association to play its part in medical demobilization and in the enlisting of all physicians who have been specially trained in preventive medicine and also all public health nurses in our mobilization to combat the invisible foes of our race.

For the next three days you will have presented to you, and hear discussed, every phase of public health work, especially in connection with the epidemic that we have just passed through, the future of the American Public Health Association and the future of the American Public Health Service. Consequently, I am going to address you for a few minutes on "Democracy and Public Health." I am going to present a few plain facts and ask you to consider with me their application. The time has come when if we are going to give our boys the democracy that they have been fighting for, we must face the facts and prepare to deliver the goods.

The True Democracy.

Modern public health administration, as I see it, constitutes the very quarry from which the material may be obtained to construct the chief corner-stones of true democracy. By "true democracy" I mean the "Lincoln Brand" of democracy, the brand of democracy that means liberty and justice for all, and makes possible for every citizen the development and maintenance of a sound mind in a sound body. This is the democracy that our boys have been fighting for. The democracy that, if we are going to keep faith with our boys, we must be prepared to deliver.

Under our present public health administrations, we require people to con-

form to certain regulations. We endeavor to teach them how to live. We tell them that plenty of nutritious food, fresh air and sunshine are the best and only reliable remedies for tuberculosis and other wasting diseases. We insist on mothers nursing their babes, assuring them that by doing so they give their infants ten chances to one that they would have if artificially fed. But what are we doing to make these possible?

No democracy existing today affords relief for these conditions except in a fragmentary way, but, thank God, there is evidence on all sides of an awakening of the social conscience to the appalling social conditions of our times, with poverty on the one hand and luxurious idleness on the other. What our nations require is a fitter race, and what every individual is entitled to is the development of the best, mental and physical, of which he is capable; and no government is worthy of being called a democracy that does not make this possible. In the democracies of today this is obtainable only for the few, while tens of millions are toiling for a wage which denies them this right.

As General Gorgas said a few years ago, in an address delivered in Cincinnati, "If I were given only one means by which to improve the health of the people on this continent, I would choose for that one, the doubling of the revenue of the wage earner." This of course, to be efficient, would require to be accompanied by a well-organized educational campaign along the lines of thrift.

Is it not time for introspection? Is it not time that we were doing a little political and social stock-taking of our so-called democracies to see if they measure up?

The world has been talking more and thinking more about democracy in the past four years than in centuries before inasmuch as the great struggle that we have just passed through has been for the most part for the democratizing of the world; and yet how many of us have taken the trouble to determine what real democracy means?

When one considers the heterogeneous character, however, as regards race, language and traditions of the population of this great republic, one is forced to conclude that your experiment in democracy has been fairly successful, but like our crowned democracy, it is badly in need of remoulding and must go into the melting pot with the other so-called democracies of the world. We must not be content with anything but the sterling article, the democracy that will stand the acid test. That is what our boys have been fighting for.

The Origin of Democracy.

Democracy is becoming so popular that all are claiming its nativity. Some claim that it was born and cradled on the Mayflower. Others that it was born in the manger at Bethlehem of Judea. Others that it first saw the light in Great Britain when John was forced to sign the Magna Charta at Runnymede, while ancient historians give credit for its conception and nativity to Greece and Rome, and I have no doubt that the Israelites would claim that previous to the time of Saul, over 1000 years B. C., that their government of theocracy, which incorporated social and religious societies, constituted the true democracy.

It must be apparent, however, that the efficiency of any democracy depends on the intelligence of the people that go to compose it.

We do not find in the democracy of the United States or the crowned democracy of Great Britain, or any other democracy that exists today, "liberty and justice for all," or even the political principle of the "government of the people, by the people

and for the people," but rather the government of the people, by the money, for the few. Real democracy does not recognize aristocracy of birth or aristocracy of wealth, but it does recognize aristocracy of worth.

As Napoleon the First expressed it, "The French Revolution meant a clear pathway for merit of whatever kind." This means giving every man a chance.

In describing democracy, James Russell Lowell said, "I would say that it is that form of society, no matter what the political classification, in which every man has a chance and knows that he has it." "If a man can climb, and feels himself encouraged to climb from a coal pit to the highest position for which he is fitted, he can well afford to be indifferent as to what name is given to the government that makes that possible," for he sees in it liberty and justice.

Democracy Does Not Mean Equality of Men, But of Opportunity.

No form of government, however, can make all men equal. The laws of eugenics make this impossible, but true democracy gives every man a chance. It simply means doing unto others as you would they should do to you. It has taken nearly 2,000 years for the world to properly grasp and turn to practical account the democracy of Christ, which means the brotherhood of man and the fatherhood of God.

Our nations have for the past four years been pouring out the best of their blood, until practically every foot of land in Northern France and Flanders has been baptized and garlands of mourning have been thrown round the whole world. We must see to it then that, for this sacrifice, when our boys have returned, they are not handed an alloy, but the sterling article, the democracy for which they fought and to which they are entitled.

Lincoln obtained his viewpoint when in his teens. Standing in the slave market of New Orleans, penniless as he was, but with a princely heart, he was deeply touched when he saw human flesh and blood bartered at the auction block. Although this was more than three decades before he entered the White House, as he left that scene he was overheard to say, "If ever I get a chance to hit that thing, by the Eternal God, I will hit it hard." This was the decision, this was the choice, of the then young deck-hand on the flat-bottomed skiff on the Mississippi. Lincoln knew that slavery was incompatible with democracy.

Every nation that permits people to remain under the fetters of preventable disease, and permits social conditions to exist that make it impossible for them to be properly fed, clothed and housed, so as to maintain a high degree of resistance and physical fitness, and that endorses a wage that does not afford sufficient revenue for the home, a revenue that will make possible the development of a sound mind and body, is trampling a primary principle of democracy under its feet.

Will any of the democracies of today stand the test? Let us see how far our democracies measure up.

First let us examine the crowned democracy of Great Britain. It is alleged that 30,000 people in England own and control over 98 per cent of the land and capital of that island. Just previous to the war, it was estimated that 700,000 men in England were constantly out of work and 800,000 were practically paupers. Of every 1,000 persons who die in old England, over 900 leave no property behind. Is this democracy? Can we see in this any claim for freedom and justice?

The Manchester *Guardian* recently drew attention to the fact that Great Britain, just previous to the war, boasted of 79 multi-millionaires, with 125 million

dollars or more to their credit; 68 with well on to 100 millions to their credit and 45 with between 75 and 100 million dollars to their credit, and as the writer expresses it, "On the more poverty-stricken scale, with only 50 millions, there were 19," and then states that "after this penurial zone is reached, we are quite willing to fall out of the running and let other nations have it."

In an address delivered by the Bishop of London, just three years before the war, at a church Congress, on "The Duty of the Church Today," when referring to the unequal distribution of wealth and the appalling amount of poverty, and to those just living on the border line—not living, only existing—he said that if a procession could be organized of these people in old London, it would take a fortnight to get it out, and before the last couple left London, the first would be in Edinburgh. "We cannot rest, therefore," said the Bishop, "until this irregular distribution is righted. We cannot rest until there is equality of opportunity for as many as possible." And yet the government that makes these conditions possible, we have been styling a crowned democracy.

Coming nearer Home.

We are told by students of political economy that in the United States and Canada, less than one-half of one per cent of the people own and control nine-tenths of the entire wealth. It is estimated that this republic possesses more than one quarter of the entire wealth of the world. And yet on this continent it is alleged that 3,000,000 children go to school either without breakfast or with improper or insufficient food for their breakfast. At the same time we find in this country thirteen families with an annual income ranging from $2,500,000 to $60,000,000, and this is what we call democracy. In the United States and Canada over 10,000,000 people are in a state of chronic poverty, and this is apparently on the increase. There are constantly 4,000,000 paupers. Ninety-nine per cent of the wage-earners in our cities die without leaving any property, and we call this democracy. Is it not man's inhumanity to man?

If we take the Bishop of London's illustration and apply it to our countries, we find that if it were possible to form a procession of those who are in a state of more or less daily privation, organized at Washington, it would take between three and four months to get the procession out of the city. It would reach from Washington to New Orleans, from New Orleans to San Francisco and from San Francisco to Chicago, and from Chicago back to Washington, and before half this melancholy multitude had left Washington, the first couple would have entered Chicago.

What are we doing to ameliorate these conditions? Doling out colossal sums, yea millions, yearly as charity. And what has it done? As someone has said, "It has merely anaesthetized or benumbed the poor, lest they cry too loud." Should not the word "charity" as we use it be expunged from our language and the word "justice" substituted? These are the conditions we find in our so-called Christian nations.

As Sir Henry Drummond expressed it: "In the final reckoning, it is the Son of Man before whom the nations of the world will be gathered. It is in the presence of humanity that we shall be charged and the spectacle itself, the mere sight of it, will silently judge each one. Those will be there whom we have met and helped; there the unpitied multitude whom we neglected or despised. No other witness need be summoned. No other charge than lovelessness shall be preferred."

"Be not deceived," says Drummond, "the words which all of us shall one day hear sounded are, not of theology, but of life; not of church and saints, but of the hungry and the poor; not of creeds and doctrines, but of shelter and clothing; and a cup of cold water in the name of Him who has said, 'Inasmuch.'" "But, thank God," said Drummond, "we are coming nearer to the world's needs, and we know better, by a hair's breadth, what real religion is, what God is, and who Christ is"—the great Exponent of Democracy, who preached practical Christianity, the brotherhood of man.

Some seem to think that socialism is the remedy. I know of no form of socialism that does not contain sufficient anarchy to condemn it. True democracy is socialism purged of its anarchy and other objectionable features. If the autocracy of Germany should swing to the other extreme of anarchy, the last state of that nation would be worse than the first. The socialisms and Bolshevisms of today must go into the melting pot with the so-called democracies, from which we may expect to arise the new democracy in which every man will have a chance and know that he has it.

The war has demonstrated, as never before, the value of man power, whether in war or peace. Every nation has been expecting every man to do his duty, and now that the war is over, every man will expect every nation to do its duty. He will expect a democracy that will make possible the development of a sound mind in a sound body, both for himself and his offsprings, and will make for them a clear pathway for merit whatever it may be, and that they will discover in it that they have a chance to climb to the highest position.

The efficient solution of the social problems of our homes constitutes the very foundation of public health administration, inasmuch as the efficient care and nutrition of the expectant mother and the children is governed by the revenue of the home. Health is a prerequisite to the enjoyment of life. We do not only want life, but we want it more abundantly. As Farrand has expressed it: "To make a country really safe for democracy, we must first make it healthy." We have heard much about making the world safe for democracy, but have we a democracy that is safe for the world? This must be assured.

The brain and brawn of the people represent our organized national capital. Through the steady advance of our industrialism and the urbanization of our people, their national worth has become more and more apparent. Consequently, in some of the more enlightened communities, the expectant mother now receives almost as much consideration as the Holstein cow and the Berkshire sow, and the infant almost as much consideration as the calf and the pig, not because they are human, not because they are made in the image of their Maker, but because of their national worth, because man power is now being recognized as the nation's greatest asset. Nations have been awakened from a national somnolence so profound that it has required millions, yea billions, of tons of explosives to arouse them.

The conclusion of the Address of Dr. Hastings will appear in the March issue of the JOURNAL.

THE FUTURE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

LEE K. FRANKEL, PH. D.,
President, American Public Health Association, New York City.

Address before the General Sessions, American Public Health Association, at Chicago, Ill., December 10, 1918.

LATE on the afternoon of November 1, 1918, a wreck occurred on the Brooklyn Rapid Transit Railway of New York City, which resulted in the death of approximately one hundred people. Before midnight the mayor of the city, the commissioner of charities and other city officials had visited the scene of the wreck. Several of them remained there during the entire night aiding in the rescue of victims and in the removal of the bodies of those who had been killed. On the following day, the district attorney of the city and the United States district attorney began investigations to ascertain the causes of the accident. The mayor of the city decided to sit as a committing magistrate in the John Doe Proceedings,—a procedure almost unparalleled in the history of the city. Many of the newspapers, in reporting the wreck, had headlines as large as those which they employed in announcing the Peace Armistice. Column after column was given up to a minute and detailed account of what had happened together with stories of survivors and others who had been eyewitnesses.

On the same day, November 1, 1918, there occurred in the City of New York 548 deaths from influenza and pneumonia resulting from influenza. On the previous day, there were 598 deaths. During the preceding week there were 5,036 deaths from the same causes. From the time the influenza epidemic began, late in September, until the day in question, there were 170 times as many deaths from influenza and pneumonia as occurred in the railroad wreck in Brooklyn. There is no record that, with the exception of the health officer, city officials were particularly concerned with the alarming number of deaths which occurred. Neither the local nor the Federal district attorney deemed the matter worthy of inquiry. On November 1, even this large number of deaths daily had become so commonplace that only incidental reference was made thereto in the columns of the press. At no time during the epidemic were there the glaring headlines so characteristic of a sensational and dramatic happening.

The reasons for the drastic action on the part of the city officials in connection with the railway wreck are obvious. The horror of the scene roused the determination of all who saw it to prevent a recurrence. The wreck itself was so dramatic that the public awoke to the need of going to any extremes, even of new legislation, to make certain that such a thing could not happen again. The epidemic, on the other hand, notwithstanding its much greater toll of deaths, had few dramatic features. It came on slowly and insidiously. While the experience of other cities indicated what might be expected in New York, there was always the belief that the city might escape. Only when the epidemic began to reach its crest was it recognized that a much worse horror than the Brooklyn wreck had its grip on the city. What the epidemic meant to New York in loss of wages, hospital and other charges, funeral expenses and payment of death claims, has never been estimated. Now

that the epidemic is over, we are in danger of settling down in our former smug contentment and of permitting things to take their usual course.

I am citing the New York situation, not because it is exceptional, but because it is probably symptomatic of what happened throughout the United States. Water rises no higher than its source. The attitude of officials and of the press reflected in a large measure the attitude of the public. While a feeling of dread spread throughout the community, the epidemic generally was accepted in a spirit of resignation and with a fatalistic philosophy best indicated by the old Italian proverb, "Che sara sara," "what will be, will be."

There must be something fundamentally and inherently wrong in our methods of health administration which have perpetuated such an apparent condition of apathy and indifference to death by disease. Human nature has not changed. Death by accident, murder, suicide and on the battle field can arouse us to the highest emotional pitch. Cholera, smallpox and yellow fever have, possibly because of their horrible developments, been sufficiently fear-inspiring to provoke extraordinary measures. I doubt, however, whether they occasion the same sense of horror as was produced by the cruel slaughter of Belgian infants. It is interesting to note that during the week of November 26, there were twice as many deaths of babies under one year of age in New York, and five times as many in Philadelphia as during the corresponding week of the preceding year. It is quite probable that during the epidemic upwards of ten thousand babies in the United States died as a result of lack of care and attention. What would we have said had we learned that during the months of September and October 10,000 infants had been slaughtered by the Hun?

Why is there this indifference and apathy on the part of the public to disease and its results? Is it because we have not succeeded in educating the people to the realization that health is their greatest asset? Are we willing to pay the price to secure this asset for ourselves and for our posterity? Do health and the prevention of disease bear the same weight and relation to our daily life as do other incidents of far less importance? The classic instance of the amounts we spend annually for the care of cattle as compared with the amount spent for the preservation of human life has been cited too frequently to be worthy of repetition here. I mention it merely to bring out certain other facts which I have had occasion to investigate quite recently.

The measure of the importance which a community lays upon its health is possibly best evidenced by the amount which it is willing to pay, or has been educated to pay, for the services of its health officer. To ascertain this amount, I recently sent a questionnaire to 786 health officials in the United States and Canada. Replies were received from 417. These have been recorded and tabulated, and the results appended to this paper. I shall attempt to do no more here than to present some of the more important summaries.

War-time conditions have, as we know, brought about not only an increase in the cost of living, but an increase in wages. The average competent stenographer can readily earn $25 per week. A good butcher probably obtains more. In the skilled industries, wages above this amount are anything but infrequent. None of these trades require unusual training nor do they carry with them any important responsibilities. Compared with these, what tale is told by the salaries, or rather wages, paid to the aver-

age health officer? Of the 417 men who reported, 60 per cent receive under $25 per week. Of the total, only 36.7 per cent are full-time health officers and of these, 25 per cent receive less than $25 per week; 63.3 per cent are part-time officers and 80 per cent of these receive under $25 per week. The average salary for the entire group was $1383 per annum. The minimum salary was $50 and the maximum salary $7500. The minimum and maximum salaries for cities having a population of 75,000 to 100,000 and in cities having a population of 100,000 to 250,000 are the same, the minimum being $1500 and the maximum $4000. Apparently in these two groups there are no standards of salary based upon increasing size of cities and corresponding increase in duties and responsibilities.

If we study the data by geographic region, there are even more interesting anomalies. Some of our preconceived notions are overturned. It is not in the older, and presumably more highly developed sections of the United States, that we find either the higher rate of pay or the larger percentage of full-time men. The South Atlantic States rank first and show an average salary per annum of $3156, and 62 per cent of full-time officers. As compared with this, the East North Central States show an average salary of $1270 per annum, and 26 per cent full-time men. Further details may be gained from the tables.

The apathy and indifference of communities is evidenced in still another fashion. Practically every city in the United States of any size today requires that its public school teachers should have had ample preliminary training and has recognized this training by placing its teachers under Civil Service so that continuity of effort and permanency of position can be assured. The returns to the questionnaire show that only 86 out of 417 officers were appointed under Civil Service rule. Of these only 40 were appointed for indefinite terms, based on good conduct. Fifty per cent of all the men were appointed for less than two years. In cities of over 250,000 population, in which the complexities of the health problem in particular demand continuity of thought and action, only 10 out of 22 officers were appointed for indefinite terms.

These illustrations could be multiplied, but they would not bear more strongly on the point at issue. Anyone who is interested will find material for study in the tables submitted. I have mentioned the fact, not so much to call attention to existing conditions, as to indicate what must be the future of public health work in the United States and in particular, what must be the future trend of the American Public Health Association.

It would be idle to discuss here or to attempt to ascertain who is responsible for the fact that health work is still at such a low standard in many communities. Indeed, there apparently are no standards. If the data submitted are of any value, they indicate that there is apparently little relation between the size of the community and its appropriation for health administration, judging the latter by the salary paid to the administrative head. If these salaries are indicative of the total appropriation for health work, the statement may probably safely be made that many cities still lack facilities for modern public health work, whose fundamental axiom is prevention of disease. There is probably still too much of the old idea prevailing that the health officer's functions are primarily the removal of nuisances and inspection of slaughter houses, pig sties and garbage disposal.

What of the American Public Health

Association? What of its future? If I read the signs of the times correctly, the association has come to the parting of the ways. It has a glorious history of fifty years. Its members paved the way for the remarkable work that has been done in the United States, in Canada and in Cuba for eradication of preventable diseases such as cholera, yellow fever, etc. That these men gained their inspiration through contact with the association is indisputable. On the other hand, much of the work which many of these men, such as Weed, Gorgas and others have done has been largely as individuals and their glory and achievement have been reflected to the association. If we are to continue and to grow, we must not be satisfied with past achievements or rest content with the fame of members or of committees. We must go ahead. To stand still means to retrograde. The war has brought us new problems which we must face. These affect not only our returning army and navy, but our civilian population at home. If the association is to function in the way it should, it will not be sufficient for it merely to hold annual meetings and to appoint interim committees for study and research. We must become a propagandist body, working day in and day out through properly constituted machinery and officials to carry the doctrine of preventive medicine into every city and town.

I take it you will agree with me that if this proposition of becoming a propagandist society be approved, the first duty of the association lies in improving the status of local and county health officers. Their present status is best indicated by the data which I have submitted. Communities must learn that the position of health officer is of equal, if not of greater importance and dignity than that of any other official. Upon the physical health of the community depend its mental and moral health. Health work must be dignified commensurately with its importance. Health administration can no longer be the football of politicians. To attract the best men with training and experience, positions must offer permanency of tenure and appropriations which will permit of constructive and intelligent activity. In short, the association must stand behind the health officer. It must be his prop and his support. Its representatives should be at his disposal to aid and to guide him if he requests it.

We probably have not fully recognized the remarkable powers which are vested as a rule in a local health officer. In addition to his general activities, he has in most communities, in emergencies, the right to exercise very distinct police powers. He may remove an individual from his home if he is a menace to the public health. This has often been done in smallpox epidemics and within the last few years this power has been applied to cases of tuberculosis. He may, as has been shown during the recent epidemic, close theaters and public schools, and exercise functions which closely affect the personal liberties of citizens. It is for this reason that public health administration can not be undertaken by private agencies, since the health officer may not delegate his powers to others. Whatever movements may originate in any community for improving public health conditions must, without doubt, have the hearty coöperation of the local health officer if they are to be successful. Such noteworthy movements should preferably originate with the local health official and be under his guidance and direction.

It is along this line of work that the American Public Health Association can be of inestimable value to the local health officer. If the association be-

lieves this to be a part of its work, I can see the time coming in the very near future when the association shall have field secretaries, prepared upon request of the local health officer, to visit his community and assist him in any campaign he may have in contemplation. These secretaries should be able, out of their larger experience, to aid the health officer in building up a constructive public opinion, to secure necessary ordinances and legislation, to arouse a community spirit which will demand appropriations from local and state governing boards and legislatures adequate for the equipment of modern health plants, including laboratories, hospitals, clinics and research departments. They will help in making the positions of health officers safe and secure. Their activities will include the effort to dignify the position of the health administrator, to secure him an adequate wage so that he may give his entire time to the improvement of community health. The doctrine of these field secretaries would not be a negative one. It would mean more than treatment and care of disease. It would have a distinctive, positive side; the eradication of sickness and the creation of buoyant health from infancy to old age.

And yet this is but the narrower phase of what the association should undertake. If there is apathy and indifference to health conditions, if the public is not awake to its health needs, the fault lies not entirely at its doors. Possibly we too have our shortcomings. Possibly we too have not yet learned the lesson or the method of bringing home to every hamlet and to every citizen those fundamental considerations which make for better and longer living. Public health education is still in its infancy. We must learn how to make our public visualize health. We must dramatize it, make it concrete. The stress heretofore has been laid upon illness. In the future, the universality of health must be emphasized. To this end, a standardized public health literature for popular use must be created, popular methods of instruction must be originated. The appeal, in whatever fashion it may be made, must be so untechnical and yet so certain that it will be convincing. Here, too, the health officer will need our help. Frequently he had not the opportunity of becoming conversant with modern current thought and research. We must bring to him the implements and the tools which he needs; the studies of our scientists and the products of our laboratories. We must make him efficient so that both we and his community may sound his praises.

Can this be done? Can it be done with our present organization? To the first of these questions I answer "yes," and to the latter, "no." The budget of our association is inadequate even for our present activities. This has been repeatedly dwelt upon at these meetings. The condition of the association's finances has been brought to your notice in other ways. I need not dwell upon it here. Suffice to say that our present budget of $20,000 is utterly insufficient for our purposes if such an extended program is to be carried out. We should have a minimum of $50,000 per annum. In the past four years, we have grown accustomed to think in terms of billions. If the health of the community is to be protected properly and adequately, we must get away from our habit of thinking in terms of thousands. Millions will be needed in the next few years to carry out the program of the United States Public Health Service. It is gratifying to report at this time the close and sympathetic coöperation which has been established between the service and the association so that they may work together each in its own field and sphere of activity with the

common purpose of improving health conditions everywhere.

I am sufficient of an optimist to believe that if we whole-heartedly determine to go ahead, the means can be found for a much more extended program than we have had in the past. This is not a question of materials but of human life. As such it can be made to interest one and all if only the proper presentation is made. When we can dramatize our work, when we can present a program which on its face will prove the possibilities of disease prevention and life extension, we can interest not dozens, but hundreds of individuals and corporations to support our movement. It has already been demonstrated that fraternal orders, life insurance companies and industrial corporations, to whom life extension is of vital and prime consideration, can be made to see the reasonableness of our program and to further our purposes through their financial aid. All we need is the will to go ahead; to develop a positive program, to work out methods and plans which shall have permanency and continuity. Most of all, we need the active interest and coöperation, not merely of the few members of the executive committee, but of each and every member of the association; coöperation which will make him a missionary, which will induce him in and out of season to preach our gospel, to carry it home with him and to spread it in the community where he abides.

There has been no time in the career of this great organization when its opportunities have been so brilliant as at present. The world has been in revolution. A return to the old order of things is impossible. If we are to move along in the new order, which, unless all signs fail, will be a bigger and a better order, we too, must enter the era of reconstruction and reorganization. Let us take up our task joyously, whole-heartedly, enthusiastically in the realization that there lies in this association, with its splendid record of the past, even greater possibilities and responsibilities in the future. If we do this, many of us may live to see the day when the American Public Health Association will be recognized in every part of America as the dominant organization making for the greatest of our national assets, long and efficient health.

TABLE 4.

Number and Percentage of All Health Officers and of Health Officers Appointed Under Civil Service Rules, with Terms of Office as Classified Below.

Term of Office	All Health Officers		Health Officers Appointed under Civil Service Rules	
	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	86	100.0
1-year term	119	28.5	11	12.8
2-year term	92	22.1	7	8.1
3-year term	21	5.0	1	1.2
4-year term	75	18.0	24	27.9
5-year term	4	1.0	....	....
Indefinite term, "good conduct"	101	24.2	40	46.5
Unspecified	5	1.1	3	3.5

TABLE 5.

Number and Percentage of Health Officers Appointed Under Civil Service Rules.

(a) BY SIZE OF CITY			(b) BY GEOGRAPHIC REGION		
Size of City	No.	Per Cent. in Specified Class under Civil Service	Geographic Region	No.	Per Cent. in Specified Class under Civil Service
Total	86	20.6	Total	86	20.6
Under 25,000	45	16.9	New England	13	23.5
25,000 to 50,000	19	25.7	Middle Atlantic	47	44.3
50,000 to 75,000	8	38.1	East North Central	16	13.9
75,000 to 100,000	3	25.0	West North Central	2	4.2
100,000 to 250,000	5	22.7	South Atlantic	3	10.3
250,000 and over	6	27.3	East South Central	1	10.0
			West South Central	1	4.5
			Mountain	1	6.3
			Pacific	2	10.0

The Future of the American Public Health Association

By LEE K. FRANKEL, PH.D.

Tables on Health Administration Compiled from Data Submitted by Health Officers

TABLE 1.

Number and Percentage of Health Officers on Part and Full Time Basis, in Specified Class of City, Receiving Annual Salaries as Classified Below.

Salary Class	All Cities		Full Time Officers		Part Time Officers		Under 25,000		25,000 to 50,000		50,000 to 75,000		75,000 to 100,000		100,000 to 250,000		250,000 and Over	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	153	100.0	264	100.0	266	100.0	74	100.0	21	100.0	12	100.0	22	100.0	22	100.0
No salary	7	1.7	....	....	7	2.7	7	2.6	....	....	....	....	....	....	....	....	....	....
$ 0 to $ 99	5	1.2	3	2.0	2	.8	4	1.5	1	1.4	....	....	....	....	....	....	....	....
100 to 199	14	3.4	....	....	14	5.3	14	5.3	....	....	....	....	....	....	....	....	....	....
200 to 299	15	3.6	....	....	15	5.7	14	5.3	1	1.4	....	....	....	....	....	....	....	....
300 to 399	13	3.1	....	....	13	4.9	12	4.5	1	1.4	....	....	....	....	....	....	....	....
400 to 499	18	4.3	2	1.3	16	6.1	17	6.4	1	1.4	....	....	....	....	....	....	....	....
500 to 749	72	17.3	6	3.9	66	25.0	66	24.8	6	8.1	....	....	....	....	....	....	....	....
750 to 999	38	9.1	9	5.9	29	11.0	35	13.2	3	4.1	....	....	....	....	....	....	....	....
1,000 to 1,249	65	15.6	18	11.8	47	17.8	43	16.2	17	23.0	5	23.8	....	....	....	....	....	....
1,250 to 1,499	9	2.2	6	3.9	3	1.1	5	1.9	2	2.7	2	9.5	....	....	....	....	....	....
1,500 to 1,999	51	12.2	31	20.3	20	7.6	21	7.9	19	25.7	6	28.6	2	16.7	3	13.6	....	....
2,000 to 2,499	25	6.0	15	9.8	10	3.8	6	2.3	9	12.2	4	19.0	3	25.0	3	13.6	....	....
2,500 to 2,999	19	4.6	15	9.8	4	1.5	7	2.6	5	6.8	2	9.5	1	8.3	4	18.2	....	....
3,000 and over	54	12.9	47	30.7	7	2.7	4	1.5	9	12.2	2	9.5	5	41.7	12	54.5	22	100.0
Unspecified	12	2.9	1	.7	11	4.2	11	4.1	....	....	....	....	1	8.3	....	....	....	....

TABLE 2.

Number and Percentage of Health Officers on Part and Full Time Basis, by Geographic Region, Receiving Annual Salaries as Classified Below.

Salary Class	All Cities		New England		Middle Atlantic		East North Central		West North Central		South Atlantic		East South Central		West South Central		Mountain		Pacific	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	417	100.0	51	100.0	106	100.0	115	100.0	48	100.0	29	100.0	10	100.0	22	100.0	16	100.0	20	100.0
No salary	7	1.7	1	2.0	2	1.9	1	.9	1	2.1	1	3.4	..	....	..	....	1	6.3	..	....
$ 0 to $ 99	5	1.2	..	....	2	1.9	3	2.6	..	....	..	....	..	....	..	....	..	....	..	....
100 to 199	14	3.4	5	9.8	1	.9	5	4.3	2	4.2	1	3.4	..	....	..	....	..	....	..	....
200 to 299	15	3.6	3	5.9	1	.9	6	5.2	4	8.3	1	3.4	..	....	..	....	..	....	..	....
300 to 399	13	3.1	1	2.0	..	....	9	7.8	2	4.2	..	....	..	....	..	....	1	6.3	..	....
400 to 499	18	4.3	2	3.9	1	.9	8	7.0	4	8.3	1	3.4	..	....	1	4.5	..	....	1	5.0
500 to 749	72	17.3	8	15.7	11	10.4	23	20.0	10	20.8	1	3.4	4	40.0	5	22.7	4	25.0	6	30.0
750 to 999	38	9.1	2	3.9	11	10.4	10	8.7	4	8.3	2	6.9	1	10.0	7	31.8	..	....	1	5.0
1,000 to 1,249	65	15.6	5	9.8	29	27.4	16	13.9	5	10.4	2	6.9	1	10.0	2	9.1	3	18.8	2	10.0
1,250 to 1,499	9	2.2	2	3.9	2	1.9	1	.9	2	4.2	1	3.4	1	10.0	..	....	..	....	..	....
1,500 to 1,999	51	12.2	10	19.6	19	17.9	6	5.2	5	10.4	4	13.8	..	....	2	9.1	2	12.5	3	15.0
2,000 to 2,499	25	6.0	4	7.8	11	10.4	3	2.6	1	2.1	2	6.9	..	....	2	9.1	1	6.3	2	10.0
2,500 to 2,999	19	4.6	3	5.9	5	4.7	7	6.1	..	....	2	6.9	..	....	1	4.5	..	....	..	....
3,000 and over	54	12.9	3	5.9	10	9.4	13	11.3	5	10.4	11	37.9	3	30.0	2	9.1	2	12.5	5	25.0
Unspecified	12	2.9	2	3.9	1	.9	4	3.5	3	6.3	..	....	..	....	..	....	2	12.5		....

TABLE 3.

Number and Percentage of Health Officers on Part and Full Time Basis.

(a) BY SIZE OF CITY					(b) BY GEOGRAPHIC REGION				
Size of City	Part-time Officers		Full-time Officers		Geographic Region	Part-time Officers		Full-time Officers	
	No.	Per Cent.	No.	Per Cent.		No.	Per Cent.	No.	Per Cent.
Total	264	63.3	153	36.7	Total	264	63 3	153	36.7
Under 25,000	196	73.7	70	26.3	New England	27	52.9	24	47.1
25,000 to 50,000	35	47.3	39	52.7	Middle Atlantic	53	50.0	53	50.0
50,000 to 75,000	16	76.2	5	23.8	East North Central	85	73.9	30	26.0
75,000 to 100,000	7	58.3	5	41.7	West North Central	33	68.7	15	31.3
100,000 to 250,000	9	40.9	13	59.1	South Atlantic	11	37.9	18	62.1
250,000 and over	1	4.5	21	95.5	East South Central	8	80.0	2	20.0
					West South Central	19	86.4	3	13.6
					Mountain	14	87.5	2	12.5
					Pacific	14	70.0	6	30.0

TABLE 6.

Number and Percentage of Health Officers with Public Health Training.

(a) BY SIZE OF CITY									(b) BY GEOGRAPHIC REGION								
Size of City	PUBLIC HEALTH TRAINING REQUIRED				NO PUBLIC HEALTH TRAINING REQUIRED				Geographic Region	PUBLIC-HEALTH TRAINING REQUIRED				NO PUBLIC HEALTH TRAINING REQUIRED			
	Physician		Non-physician		Physician		Non-physician			Physician		Non-physician		Physician		Non-physician	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Total	101	24.2	58	13.9	170	40.8	88	21.1	Total	101	24.2	58	13.9	170	40.8	88	21.1
Under 25,000	56	21.1	32	12.0	116	43.6	62	23.3	New England	2	3.9	14	27.5	8	15.7	27	52.9
									Middle Atlantic	37	34.9	26	24.5	17	16.0	26	24.5
25,000 to 50,000	19	25.7	14	18.9	21	28.4	20	27.0	East North Central	33	28.7	10	8.7	56	48.7	16	13.9
									West North Central	8	16.7	2	4.2	27	56.3	11	22.9
50,000 to 75,000	6	28.6	2	9.5	9	42.9	4	19.0	South Atlantic	10	34.5	3	10.3	12	41.4	4	13.8
									East South Central	3	30.0	...	....	7	70.0	...	....
75,000 to 100,000	7	58.3	1	8.3	4	33.3	...	....	West South Central	3	13.6	...	....	19	86.3	...	....
									Mountain	2	12.5	1	6.3	12	75.0	1	6.3
100,000 to 250,000	8	36.4	4	18.2	9	40.9	1	4.6	Pacific	3	15.0	2	10.0	12	60.0	3	15.0
250,000 and over	5	22.7	5	22.7	11	50.0	1	4.6									

TABLE 7.

Average, Maximum and Minimum Salary, and Per Capita Expenditure for Salary.

(a) BY SIZE OF CITY

Size of City	Average Salary	Maximum Salary	Minimum Salary	Per Capita Expenditure
Under 25,000	$840	$3,600	$50	*
25,000 to 50,000	1,666	4,000	85	$.05
50,000 to 75,000	1,874	3,500	1,150	.03
75,000 to 100,000	2,700	4,000	1,500	.03
100,000 to 250,000	2,793	4,000	1,500	.02
250,000 and over	4,814	7,500	3,000	*

(b) BY GEOGRAPHIC REGION

Geographic Region	Average Salary	Maximum Salary	Minimum Salary	Per Cap Expenditure
New England	$1,334	$7,500	$100	*
Middle Atlantic	1,558	7,500	85	....
East North Central	1,270	7,500	50	....
West North Central	1,194	5,400	100	....
South Atlantic	2,156	4,000	125	....
East South Central	1,545	4,000	500	....
West South Central	1,404	5,000	420	....
Mountain	1,477	4,000	360	....
Pacific	1,829	5,000	480	....

* Range of population too wide to make "per capita" significant.

FASHION HINT FROM FRANCE.

Here is another of those very interesting little French picture postal cards, sent to the JOURNAL by its former editor, Captain Gunn, from his work in France in the education of the people in matters of sanitation and hygiene.

The meal is about ready, the table showing the very economical furnishings of the French home and the boy is getting ready to eat. He is not slamming his cap on the floor and rushing to the table, but is doing what every one should stop to do, washing his hands. The legend says, "Wash the hands before eating and after coming from the W. C." the French having adopted the familiar English initials. The dog shows signs of interest at the rattle of the dishes.

A lesson conveyed in this way to children is pretty certain to stick in the memory and is not wasted on the parents. Fashions of this kind are of enormous health importance.

PROFESSOR CRADDOCK'S COURSE AT COLUMBIA.

Columbia University is starting this month under Professor R. E. Craddock a course in Public Health and Standards of Living. The lectures which are to be given on Fridays will treat of the various phases of human conservation and their economic and social significance. War conditions have emphasized as never before the importance of fitness, whether in the infant, the school child or the adult. The administration of health promoting activities and the protection of the standards of living are becoming matters of national concern.

URGENT PUBLIC HEALTH NEEDS OF THE NATION.

RUPERT BLUE,
Surgeon General, United States Public Health Service, Washington, D. C.

Read before General Sessions, American Public Health Association, at Chicago, Ill., December 10, 1918.

WHEN the history of this war is written not the least significant part will be that recording the achievements in the field of preventive medicine. Who, for example, will not be deeply gratified to read that out of the huge army mobilized by the United States there have been less than 200 cases of typhoid fever. Or who, familiar with the dread rôle of typhus fever in the past, will grudge recognition of the effective control of this disease among the millions of allied troops on the Western Front? Can anyone doubt that thousands, yes, hundreds of thousands of lives have been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French and American military organizations?

We should be remiss in our duty as guardians of the public health if we did not insist that what can be done among soldiers in the unfavorable environment of war, can and should be done among the civilian population in the far more favorable environment of peace.

With the example of the accomplishments of our military colleagues before us we must arouse the people to the importance of continuing and extending measures of health conservation throughout the country. The quality of our water supplies still leaves much to be desired; except here and there, little attention is paid to the proper disposal of excreta; milk is still a frequent carrier of infection. In matters of personal hygiene, the more than 30 per cent rejections by the draft boards because of physical defects of the registrants, affords eloquent testimony to our physical shortcomings. An infant death-rate over 100 per 1,000 births reveals a field where much saving of life can be accomplished. When one considers the very effective means available for the control and eradication of malaria, the continued prevalence of this disease in large sections of the country is not only deplorable but interferes, to an extent but little appreciated, with the economic development of the nation. We speak of tuberculosis as a preventable disease; yet it still causes nearly one-tenth of all the deaths in the United States. The same proportion holds true for pneumonia. There is really no question whatever, that the persistent application of the knowledge which medical science already possesses regarding these diseases would effect a considerable reduction in the prevalence of these infections.

It is not an easy matter to interest the general public in matters relating to sanitation and preventive medicine. The reduction of death-rates is usually too intangible to be appreciated as something of very direct personal interest. As a consequence we find almost everywhere a lamentable lack of support for the work of health authorities. With the increasing demand for economy in administration, who will doubt that the legitimate demands of public health work will not be sacrificed unless we succeed in showing that adequate support for well planned health work constitutes really wise economy, because it not only conserves our national strength, and reduces our expenditures for the treatment and care of illness and death, but also because the money lost in wages and in lowered industrial output is an astounding amount

which directly and indirectly affects the business man, the employer, the employee, the wives and the children.

But it is not to arouse a spirit of competition that the experience of the military authorities is cited. There are other urgent reasons why we should all prepare to make our work more effective than ever. I refer to the demands which will be made on health authorities throughout the land because of the problems arising from what is generally spoken of as "reconstruction."

It is only necessary to consider the great economic changes which are sure to occur in the hundreds of communities which have engaged largely in war activities. With these changes too, will go extensive shiftings of population, and these will still further unfavorably influence health conditions. The conditions after the war with the demobilization of troops and the resumption of immigration from areas in which sanitation has been necessarily neglected, constitute a situation of far greater menace to the health of the nation than has previously existed.

It must also be remembered that among the hundreds of thousands of soldiers who will soon be returned to this country a number may and will exist who will be carriers and disseminators of diseases ordinarily not prevalent in this country, or not prevalent in that part of the country to which the soldier returns. With our present knowledge concerning the rôle of convalescent and normal-carriers in the spread of infectious diseases, this is by no means an imaginary danger.

Finally public health authorities must be prepared for increased demands from the returned soldiers themselves. For months these soldiers have seen certain measures of sanitation and hygiene insisted upon as indispensable to the maintenance of good health. More than this, they have witnessed the good results which have followed the application of these measures. To the extent that these measures represent activities carried on for the soldiers by the army organization, it is not unreasonable to suppose that such activities will be demanded of local civil health authorities by the returned soldiers. Among these may be mentioned the provision of pure drinking water supply, adequate disposal of garbage, manure, and other refuse, removal of sources of fly-breeding, control of the mosquito nuisance, provision of adequate washing and bathing facilities, protection of food supplies, and the like.

We must not shut our eyes to the fact that the immediate future constitutes a period of intense competition on the part of all the nations of the world. Unless we do our utmost to bring this country to the highest degree of fitness and maintain it there, we shall fail to keep our country in the present favorable position attained with so much effort. To the health officer this means the reduction of sickness and personal injury, the prevention and correction of physical defects, the promotion of bodily health and vigor, and the prolongation of useful life. How are these desirable ends to be brought about?

It will hardly be denied that the most pressing activity on which health administrators must concentrate is that included under the general term "industrial hygiene." While health officers have insisted for some time past that industrial efficiency was largely dependent on health conditions in industry, the truth of this fact was hardly realized until the present war. With the beginning made by war industries, a rapid development of this field of public health is imperative. This should embrace extensive surveys to discover and correct health hazards in industries, medical examination and health supervision of industrial workers, the establishment and enforcement of

minimum standards of industrial hygiene, the establishment of an adequate system of reports of industrial diseases and accidents, in short everything that is needed to promote efficient operation of industries and safeguard the health of the workers.

No less important than industrial hygiene is the carrying out of a comprehensive program designed to check the present appalling waste of infant and child life. So far as the health authorities are concerned such program must aim not only to prevent diseases of infancy and childhood and to diminish maternal mortality due to conditions and diseases associated with childbirth, but it should so supervise and safeguard the health of our children that when these reach the age of manhood and womanhood they will be physically prepared to carry on the important duties imposed upon them by citizenship in our great nation. As an indispensable part of this work, the program should provide for the health supervision of school children and the children of pre-school age, including, of course, the detection and correction of their physical and mental defects.

The so-called "extra-cantonment zone" activities carried on by the United States Public Health Service have revealed anew the great need of developing rural hygiene throughout the United States. This need has been felt even in the older states with well organized health departments. Because of the large degree to which the public health of the more populous districts is dependent on rural health conditions, it will be advisable to provide for some system of Federal and state aid in order to establish and maintain an adequate system of rural health administration. The work in these districts must be directed especially to the provision of safe water supplies, the cleanly disposal of human excreta, the pasteurization of milk supplies and the bedside control of communicable diseases, and the community control of malaria.

At the present time a large amount of preventable disease in this country is still traceable to two sources whose protection and control offers no technical difficulties, namely, water supply and milk supply.

So far as the water supply is concerned, health authorities should undertake surveys of all public health supplies, and should insist on the introduction of methods of purification wherever such are indicated. That the benefits of such purification are much greater than is ordinarily appreciated is well known to health officers who have studied the so-called Mills Reinecke phenomenon.

In the case of the milk supply, efforts should be made to insure safety by insisting on pasteurization and by enforcing adequate systems of inspection of the production, handling and distribution of milk. In the extra-cantonment zones the Public Health Service in coöperation with state and local boards made a special effort to establish pasteurization plants. The results obtained were very gratifying, some ten or twelve cities having erected plants during the past six months.

A large part of the diarrhœal diseases occurring in this country is due to lack of proper sewage disposal. It is estimated that these diseases now cause over 60,000 deaths annually. A very large saving of lives can therefore be effected by the elimination within municipal limits, of cesspools and privies, the extension of water carriage sewerage systems wherever practicable, the establishment and enforcement of minimum standards of permissible pollution of streams, lakes, and rivers used for water supplies.

Finally, as the most effective means to be employed in all modern public health work, health authorities should organize and carry on health education of the general public. Efforts in this direction

should not only aim to provide an intelligent public opinion ready to coöperate fully with health authorities in the prevention and control of disease but should enable the people to undertake a large measure of self protection in health matters.

To what extent is the United States Health Service prepared to assist in carrying out this very necessary program?

In industrial hygiene the Public Health Service will naturally be expected to exercise medical and sanitary supervision of such commercial and industrial establishments as are operated by the United States government. This would include the united railway systems, the new government shipyards, munition factories and other industrial plants during the period they are controlled by the federal government.

In addition to this, however, there is an insistent demand for uniform minimum standards of industrial hygiene and of approved measures for the prevention of occupational diseases, and just as the enactment of the so-called "Model Law for Vital Statistics" has been of incalculable value in promoting vital statistics through out the United States so will the adoption of uniform minimum health standards in industry do much to promote the health of the workers. Such standards should be formulated by the Public Health Service in coöperation with the Department of Labor and should then be recommended for adoption by individual states and municipalities. The Public Health Service is also prepared to continue making health and sanitary surveys in important industries in order to assist in the recognition of occupational hazards and in the establishment of procedures for this control.

In the prevention of diseases of infancy and childhood the bureau stands ready to supplement the excellent work of the Children's Bureau in the field of child hygiene, to coöperate with the Bureau of the Census and with state and local agencies in promoting the accurate registration of all births; and to aid the Bureau of Education and state and local authorities in promoting the medical supervision of school children. As in the past, these activities will, if necessary, be supplemented by field and laboratory investigations so far as the resources of the bureau permit.

So far as rural hygiene is concerned, the bureau hopes to be able to secure funds for Federal aid-extension for the establishment and maintenance of adequate county health organizations in counties in which the county and state governments, separately or together, will bear one-half or two-thirds of the expense for reasonably intensive rural health work. Under this plan the county health officer would be given a commission in the Reserve of the Public Health Service and would constitute an invaluable integrating link in the organized system of public health administration. The bureau is also prepared to continue studies by a special board of officers to determine improved methods of rural sanitation, and to help formulate and carry out, in coöperation with local authorities extensive campaigns for the sanitation of groups of rural towns.

In promoting the quality of the country's water supplies the bureau is prepared to continue the extensive field, laboratory and engineering studies carried on during the past six or seven years. On the basis of these it will aid in the establishment of minimum standards of purity, will use its federal authority to protect sources of interstate water supplies, and supplies used on railroads and steamships engaged in interstate traffic. The service owns and operates two laboratory cars, both of which are ready at any time to take

the road in response to requests of state and municipal health authorities.

For the protection and improvement of milk supplies, the bureau will continue to make laboratory and field investigations and in coöperation with state and local health authorities will conduct experimental demonstrations looking toward the improvement of milk supplies generally. It will also aid the adoption of uniform minimum standards for the production and handling of milk supplies.

Through various divisions of the bureau the Public Health Service will aid in promoting proper sewage disposal throughout the country. Laboratory and experimental field investigations along this line will be made to devise satisfactory methods of sewage disposal to meet different requirements as to size of the unit, character of the sewage, available facilities for ultimate disposal, degree of purification necessary, and the like. As in dealing with water supplies, the Public Health Service will use its Federal authority to establish and enforce minimum standards of permissible pollution of streams, lakes, and rivers used for interstate water supplies, and will assist state and local health authorities in obtaining safe sewage disposal in their respective communities.

Continuing its work of previous years the Public Health Service will make anopheline and malaria surveys throughout the country, and conduct experimental demonstrations in various phases of anti-malarial work. The bureau is also prepared to assist state and local health authorities by detailing trained officers to plan, organize and direct anti-malarial campaigns, and to aid such authorities in securing appropriations for the reclamation of large areas from malaria through appropriate drainage work. The bureau will make an effort to secure Federal aid for such projects by asking for appropriations on a 50–50 basis.

The medical officers and sanitary engineers of the Public Health Service have had splendid training in anti-malarial work during the past two years. More than $700,000 have been expended in that time for the protection of the military camps against malaria.

In dealing with tuberculosis the Public Health Service will aid in the adoption of uniform laws for the control of this disease, and assist, as far as practicable in solving the difficult problems arising from the unnecessary migration of the tuberculous. In addition to this, the Public Health Service plans to coöperate with the War Risk Bureau in providing sanitorium treatment for tuberculous soldiers and sailors in need of such care. An adequate program for the control of tuberculosis would also involve the establishment of a commission to develop more effective methods for the control and cure of this great scourge.

In connection with all the activities just enumerated the Public Health Service plans to constitute itself a national center and clearing house for information, advice, and educational assistance. That such a center is urgently needed is evident to all who have had practical experience in the field of popular health education. At the present time, because of the lack of such a center, much educational effort is wasted; the valuable experiences made by one group of educators are unknown and therefore are not utilized by other groups; obsolete and expensive methods are still frequently employed; there is a distressing duplication of effort in the preparation and publication of popular health leaflets. The high initial cost of some forms of educational methods such as lithographed posters and moving pictures, prevent the wider use of these excellent educational vehicles; and finally, ignorance of the

technical side of modern publicity methods results in the waste of otherwise valuable educational material.

It is believed that most of these defects in our present system of popular health education will be overcome by the establishment, within the Public Health Service, of a special division dealing with health education, and that such an activity will constitute an invaluable coöperative aid to state and local health authorities.

Finally, the establishment of the permanent Reserve in the Public Health Service constitutes one of the most progressive steps in public health development which this country has yet realized. Such a Reserve will not only provide a large body of trained men available for active duty to coöperate with state and local health agencies in meeting national emergencies, but it will train and keep abreast of the times thousands of reserve officers, who, when on inactive duty, will become centers for local health development throughout the nation. In fact, at present, it is difficult to visualize the wonderful possibilities of such a trained organization.

The immediate future is perhaps the most important period that has ever confronted health authorities. It will require all our energies and the closest coöperation. Not to utilize this opportunity adequately, to raise the standard of health administration throughout the country will be equivalent to a definite step backward. Let it not be said that reconstruction found us unprepared.

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HEALTH PROBLEMS OF THE FOREIGN BORN.

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Read before the Sociological Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

PUBLIC health administration is rapidly passing into a new stage. The days of "shotgun" methods are numbered. It is just as important for health officials to make accurate diagnoses of community ills as it is for the physician to know exactly what ails his patient.

Rational administrative treatment of disease can be based only upon exact knowledge. This is well illustrated by the history of yellow fever. Before the discovery of the cause and mode of transmission of this disease, whole cities were put under "shotgun" quarantine in an attempt to control the infection. We now know that the concentration of our efforts on mosquito control will succeed where "shotgun" methods failed. This principle of exact diagnosis and rational treatment should now be applied to all of our public health problems.

Sickness must be prevented and death deferred, not only by attacking disease and its immediate causes, but also by correcting the social and economic conditions which we now realize play such an important part. Consequently, the scope of public health work should not be limited to the narrow confines of sanitation, but should include all that is serviceable in sociology and economics.

This paper is presented with a view of calling to the attention of public health workers the need of exact community diagnoses and of provoking a discussion of this need in a particular case, namely, health problems of the foreign born.

Since 1776, there has poured into the United States a constant stream of im-

migration. During the early period from 1776 to 1820, this amounted to 250,000 persons. From 1820 to 1915, the arrivals at all ports of entry have been 32,354,124. These new arrivals were made up of every race and nationality under the sun.

The far-reaching influence of this dilution of our population has never been accurately measured. That it has markedly modified the customs, manners, laws and health of the American people cannot be doubted. Therefore, we should set ourselves the task of studying the past health history and the present health status of these groups of foreign born population, in order to evaluate properly their physical vices and virtues, and thus to determine what sort of a contribution they are making to the American public health problem.

The character and origin of our immigrants is of practical importance. The older immigration (prior to 1885) was largely Irish and German in composition while the newer immigrants are largely Jewish, Italians and Slavs.

Dublin makes the significant statement that "the foreign countries from which our immigrants come show uniformly a higher mortality rate than that prevailing in United States. The data shows that the effect of the mortality of the foreign born on that of the total population is not altogether favorable."

It is imperative, then, for us to have accurate knowledge of the mortality rates of the race groups that compose the "foreign born." A number of individual studies have been made by Billings, Hoffman, Dublin,* Guilfoy and Davis, on various aspects of this question. All of them are significant, but none of them are complete enough for final judgment. It has been established, however, that the foreign born groups have general death-rates higher than the native born. A closer analysis of these returns shows that some groups are health assets and some are health liabilities.

We know that the Jewish stock acts favorably on our mortality curves, while the Irish stock acts unfavorably. We now know that the presence of Russian and Austro-Hungarian Jews and Swedes favorably influences the infant mortality rate while the presence of English, German, Irish and Italian parents serves to increase the infant deaths. A careful analysis of the work already done indicates that this field of inquiry promises to yield some fundamental information in the solution of many of our American public health problems. It is the writer's belief that there should be instituted a comprehensive study of this subject that would make this information available to all public health workers.

The scope of this inquiry should comprise a careful comparative study of racial heredity, health and habits.

Racial Heredity.

This is an important factor in health. The physical make-up of the various human groups has much to do with their power to resist disease. The apparent immunity of some groups to certain diseases is probably due to the experiences of their ancestors. This racial heredity can best be approached by a careful historical and statistical study of the "native land" of the foreign born groups.

Racial Health.

It will be impossible for us to understand fully the factors to our mortality rates until we have made a careful study of specific death rates from various diseases. This study should include proper consideration of the factors specified by Guilfoy as necessary to make satisfactory comparisons, namely,—

* Factors in American Mortality, L. I. Dublin, American Economic Review, Vol. VI, No. 3.

1. Age grouping of nationality.
2. Sex grouping and distribution.
3. Occupation.
4. Social and economic environment.
5. Climatic conditions.
6. Civil conditions.

This information will give us a clear picture of the racial influence upon health.

Racial Habits.

All our foreign born groups bring with them their own habits and customs. We will fail in our interpretation of their health status if we neglect to consider carefully the characteristics of each group. To know the peculiar racial food habits; to understand the quality of their personal hygiene and to grasp properly their true standards of living, these are the necessary facts upon which to base an intelligent understanding of our health problems among the foreign born. As we come to be more intimately acquainted with the various groups, we will realize that they have many fine qualities that can be profitably adopted by the American born.

The facts already presented indicate clearly that we have a peculiar problem in dealing with our foreign born population. In order to meet this situation, we should have at our command the fundamental data about these groups of people, not only as we meet them in America but also as they have been in their native lands. These data can only be obtained through a systematic study such as has been indicated above. They will then form the background for a real, effective program for meeting the practical difficulties which the foreign born present to the health official.

The practical application of such information could be applied to such difficult problems as that of midwives, child welfare, control of communicable diseases, housing, sanitation and personal hygiene.

Midwives.

Every health official in any city having a large percentage of foreign born, realizes the great importance of midwives upon the death rates among women and infants. No satisfactory solution of this problem will ever be reached until due consideration is given to the long established European *customs*. It will take years of intelligent effort to change these customs if that is desirable or to substitute modern standards among midwives.

Child Welfare.

The morbidity and mortality rates among children of certain of the foreign born groups is of grave importance. Careful studies already made show that their influence is not all unfavorable. As noted previously, the presence of Russian and Austro-Hungarian Jews and Swedes influence favorably the child mortality rates. These facts need further investigation. In addition, the Children's Bureau studies have shown the definite relationship between wages and infant mortality. No intelligent child welfare program can be successful until the economic factors underlying it are given proper attention.

Control of Communicable Diseases.

Frequently, health officials feel that their greatest difficulties are in controlling communicable diseases among the foreign born. This difficulty is only peculiar to the foreign born where they can not understand our language. Sanitary ignorance is not confined to the foreign born. We need here again the knowledge of the racial traits as well as a vehicle of communication. This communication may be established through the medium of interpreters, teaching of English, foreign speaking doctors and nurses or literature in foreign languages. The underlying problem is the same

among the foreign born as among the native born.

Housing.

One of the characteristics of our foreign born is their segregation in districts. Practically all of these colonies are in the poorer sections of the city. This choice of homes is not entirely voluntary. It is due to two influences, the economic status of the group and the tendency to restrict the "foreigners" to certain quarters. Considerable condemnation is heard of the lack of sanitation in these homes. The writer maintains that it is impossible to maintain sanitary standards upon less than living wages and the compulsion that this brings with it of inadequate living quarters. I do not believe that it is any more difficult to teach our foreign born people proper home sanitation than it is the American born, if we give them an equal chance, socially and economically.

Personal Hygiene.

Frequently, we hear all "foreigners" classified as "dirty" and devoid of all knowledge of personal hygiene. Superficial studies of this subject would seem to confirm this, but more careful analyses will probably reveal that it is not entirely a matter of racial trait or choice. This is well illustrated by the rapid change in habits of living among those members of the groups who have succeeded in rising somewhat higher in the economic scale.

These then are some of the phases of the problem of health among the foreign born as they present themselves to health workers. Most of them are universal problems that are not bounded by racial lines, all of them have the element of public health education. Permeating all of them is the great problem of the proper assimilation of all of our foreign born residents. This brings us to the important subject of Americanization.

This movement is well under way. It undoubtedly presents at this moment unusual opportunities for real service. The success of it will depend upon taking into consideration all of the fundamental elements of the problem. Among these elements are surely an accurate and sympathetic understanding of the health problems of the foreign born. Therefore, the writer appeals to health workers to make a careful study of this matter in their own communities and to insist that into any Americanization program shall be incorporated a proper consideration of health.

DISTRIBUTION OF VACCINES AND SERUMS BY THE STATE LABORATORIES.

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Read before the Laboratory Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

IN EVERY public health laboratory the question frequently arises as to whether it is advisable to undertake certain new lines of work. In the average state laboratory the problem is usually financial and it becomes necessary to decide which of several proposed undertakings will be of the most service to the state.

Perhaps no two laboratories have decided these questions exactly alike, and this is as it should be. We all have identical aims but the problems are never quite the same. The possibility of block-

ing all initiative is a distinct danger in the efforts which have been made to standardize all laboratories.

It has been suggested that the work of the North Carolina laboratory in vaccines and antitoxins would be of interest as an illustration of what it was thought best to do under our own rather average conditions. We have considered the original diagnostic work as always of the first importance but a state laboratory should surely be more than this. Educational and health propaganda belong only incidentally to the laboratory and as for research work no rules can be laid down except that it should not be made an end in itself.

The vaccine work was first suggested by the remarkable achievement of eliminating typhoid fever from the United States Army. In 1913, before we began the free distribution of typhoid vaccine, the cost of the three injections was $2.50. This cost alone was a sufficient reason for a limited use. The vaccine made in the laboratory is sent free to any registered physician. We estimate that at least one-fifth of our population has been immunized with this vaccine since 1913.

It was the success of the typhoid vaccine which showed us the need of this service. We have since in like manner distributed other vaccines such as, typhoid and paratyphoid triple vaccine, pertussis vaccine and smallpox vaccine. A much more pretentious undertaking is the making of antitoxins. That there is need for state aid in providing diphtheria antitoxin is so self-evident to me that it seems useless to go into the arguments. It is only necessary to state that in certain communities of our state the retail price of commercial diphtheria antitoxin has only recently been $8 for 5,000 units. This cost is prohibitive to a large percentage of the population. The question before us was to decide between two methods: either to secure an appropriation sufficient to buy antitoxin for the state or to make it ourselves. We chose the latter. It was thought best to impose a price of 25 cents on each package of antitoxin, which amount approximates the cost of the syringe and package. The price to the public is the same whether the syringe contains 1,000 or 10,000 units. We believe this small charge will be sufficient to insure proper care of the antitoxin and to guard against waste, which might occur with an absolutely free article. In a similar manner the manufacture of tetanus antitoxin has been undertaken and various vaccines and antitoxins will doubtless be taken up when deemed practical. As a matter of policy as well as on account of lack of funds the distribution is limited to those products whose efficacy has been proven and which are generally accepted.

It may be of interest to know the cost of this work. It is difficult to go into details but I may say that the typhoid vaccine work was undertaken when our total income for all work was $15,000 per year. The income this year is only $25,000, which amount has carried us through. Our budget for the coming year is $35,000, and we hope to get it.

In conclusion I want to make it plain that I am not advocating indiscriminate manufacture of vaccines and serum by the state. I do urge, however, that the state exercise its right of control over those which are of proven value and which are in reality indispensable. When this is done it will be found best in some states to manufacture them.

A YEAR'S CHANGES IN FOOD HABITS.

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Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

REALIZING the enormous area included in the United States and Canada, involving distinct climatic conditions both from North to South and from East to West, it is manifestly difficult to estimate just what changes have taken place within a year or two in the food habits of our people in the several areas whose natural products vary so greatly.

Professor Taylor in his address before congress pointed out that quite notable differences existed in the food habits of the people of Southern Germany as compared with those in Prussia and the North Eastern Provinces, their diet being much more of a vegetable and fruit and less of a meat character. If this be true it need hardly be said that the people of the Southern States, where the banana and orange are native, would eat much less animal foods than those of the Northern States and Canada where hitherto the quantity of such has been from 8 to 10 ounces a day as the average for the whole population.

In any discussion of a year's changes in food habits we naturally think, however, chiefly of the changes which have resulted from the economies demanded by war needs, and it is to this phase of the subject that I shall especially direct your attention. During the past forty years the people of the Northern States to a much greater extent than the conservative population of Great Britain, have changed their food habits from the time-honored meat and bread diet, to a very much more rational dietary involving the increased use of not only home-grown vegetables but also of the fruits of the South and West, which have been advertised with the business persistence of large corporations engaged in the shipping and forwarding business.

In an admirable booklet on the "Changes in the Food Supply and Their Relation to Nutrition," by Prof. M. B. Mendel of Yale, particular attention is given to this point, statistics therein showing that the value of the products of the orchards in the United States in 1840 was about $8,000,000 while the census of 1910 gives the value at $140,867,000. Similarly the small fruits contributed $3,000,000, grapes $22,000,000, citrus fruits $23,000,000 and sub-tropical fruits $2,000,000. It will thus be seen that while the population increased some five times since 1840, the use of fruits has increased over twenty times during the same period. While such a change in the use of fruits is incidental to the coming of the steamship and railway, associated with the enormous increase in urban population, it has nevertheless been accompanied by certain changes in the fashion of foods of a less desirable character. Thus the use of all wheat flour by the old milling process has been replaced by a flour made by the modern roller process from which for greater profits in by-products much of the protein and mineral salts have been removed. Not only in this way has the use of starches greatly increased, as well as of sugar, but the food of the growing children of our population has also lost much necessary protein, while the use of fats and oils formerly universal in the bacon of former times has notably been decreased. However, this disuse of the coarser fats and oils has in some degree

been made up by an increase in the use of butter, as the form of fat not only most palatable to the American but likewise the most digestible.

To the use of fresh vegetables must be added the enormously increased use of canned fruits and vegetables, the quantities of which are not included in the statistics already referred to. These amounted in the United States in 1908 to $120,000,000 in value. Another very notable change in the fashions or fancies in foods during the last twenty years is seen in the use of manufactured articles in which the ordinary grains are variously used in breakfast food packages. Apart, however, from the greatly increased cost of many of these foods, the development of a taste for these foods, perhaps more digestible through their partial change to sugar, has tended to the further use of hydrocarbons, lacking in the protein contents essential to a true food. As the chief analyst of inland revenue for Canada says: "The popularity of these foods is due to four factors: (1) Attractive and widespread advertising. (2) A growing tendency to save time in the preparation of the meal. (3) The guarantee of cleanliness furnished by the manner of packing. (4) The attractive flavor possessed by most of these foods." Another change in food fashions is seen in the use of milk products in the shape of flavored ice-creams as a condiment, thus removing the protein contents from a food formerly used in the shape of cheese.

Except in seaport towns it is probable that the use of fish has on the whole until recently decreased, not only owing to the lessened supply and increased cost, but also because fish unless absolutely fresh is usually held in disfavor. Indeed the popularity of fish judged from the amount of it canned, seems to have increased less during the last census period so far as increased quantity is concerned than any other canned product.

This brief review illustrates the changes which have taken place in the food habits of the American and Canadian people during the last half century. The direction of these changes has doubtless been toward supplying articles which, while more attractive to the palate, have likewise been more readily digestible for the large number of people, whose habits of living have lessened the need for the stronger protein foods as oatmeal, all wheat, rye and barley. On the other hand grave injuries have resulted to the nutrition of classes whose physiological needs have suffered through the lack of proteins, whether due to their high cost or to the indulgence of gustatory fancies. There is little doubt, however, but that the introduction of Southern fresh vegetables and fruits during the long winter of the North has proved on the whole greatly beneficial to that large class of workers to whom variety in their food has always proved difficult owing to expense.

We are now in a position to view the food situation as it actually exists in America after two years of unceasing submarine warfare, which has affected the normal distribution of foods owing to the needs of the Allies in the four essentials of wheat, bacon, sugar and fats, all of which have been steadily decreasing year by year during the last four years. That the situation of the allied peoples as well as of their armies has not really been serious as yet is in a large measure due to the experience and energy of Food Controller Hoover, whose administration of the Belgium Relief Food Fund probably fitted him to undertake the responsibilities laid upon him by the government as none other could. He was impressed with the great need which existed for the conservation of every

pound of food, which could in any way supply energy to the soldiers and keep those engaged in war work, such as munitions, at the maximum degree of efficiency under existing conditions, while maintaining the civil population of the Allies at the highest possible stage of comfort necessary to efficiency. The submarine warfare has added enormously to the difficulty of the situation. Even as late as August, 1918, after all the destruction of ocean tonnage since February, 1916, the losses due to submarines amounted to 327,675 gross tons of which 176,401, a slight decrease, was British tonnage. On the other hand to have some idea of the total tonnage arriving at British ports, it may be stated that there were 8,881,639 tons of shipping entering and clearing from the United Kingdom during the same month.

It is obvious then that the problem as shown by these various figures, rendered it necessary that every possible effort should be made to have transferred from this continent those foods especially high in their energy-producing value, most compact in bulk in comparison with their food values, least perishable and most constant in quality and least variable and cheapest in price. Such, as has already been pointed out, are the four items wheat, bacon, fats, and sugar. A further situation had to be met in that Canada during four years and the United States during the last year and a half had seen a large proportion of the man power of both nations being removed from production; so that we find that in spite of every effort there has been a steady reduction in the number of cattle and hogs and a decreased number of milch cows. Thus the Advisory Committee of Congress in May, 1918, reported 29 per cent less live stock in the United States, 20 per cent less hogs in Iowa and 3 per cent fewer milch cows.

It is obvious then that the first step to be taken was to ensure the largest possible saving in wheat to supply not only our own increasing armies in France and Italy, but also the other Allies dependent on us for food. As the Food Board has reported there were but 20,000,000 bushels surplus of the 1917 crop for export under ordinary conditions, yet 120,000,000 bushels of wheat were exported; which meant that the people of the United States had consumed 100,000,000 less bushels. This is all the more notable since the nutritive value of the poor crop of 1917 was less by 7 per cent than the average. Canada exported during the same period of wheat 85,000,000 bushels more than the average for the preceding three years.

It is further important to realize that the world's supply of food animals had fallen since the beginning of the war by 115,000,000. We have also recently been made to realize how dependent we are on this continent when we learn that the submarines off our coasts sank in a few months 50,000,000 pounds of sugar.

Manifestly then there were three things for us to do in this crisis, viz.:

1. Produce more of these several food supplies.

2. Conserve them in every way possible especially by consuming less.

3. Replace them by other kinds of foods.

With regard to the first our Food Controllers tell us that in 1918 the United States planted 10 per cent more winter wheat while Canada planted 6,000,000 acres more grain, equivalent to an increase of 120,000,000 bushels. England enormously increased her acreage up to the point of supplying 70 per cent of her own needs, having an increased acreage of 1,000,000 acres and 10,000,000 acres in crop; but the crops of France and Italy were notably less than the average.

Thus the sugar production of France in 1917 fell from 750,000 tons to 210,000. But a remarkable outcome of war needs is seen in the armies in the fields becoming their own food providers. Mesopotamia in 1918 has grown more grain than before in centuries of her history, having 7,000,000 acres in crops; while irrigation by pumping water from the Tigris has raised 25,000 tons of wheat and 100,000 tons of barley. Egypt has been once more a granary in time of dearth and has given 424,000 tons of hay in 1918 and will harvest an enormous crop of sugar.

Such are the chief illustrations of how the Allies' food supply has been assured for this year; but perhaps the most interesting phase of our subject is that in our second postulate of saving more by consuming less of these essential foodstuffs. We all know that none amongst us has suffered from a dearth of available food, although the poor may have been injured through high prices. It is of course true that some corn, rye and barley have been introduced into our bread, some glucose into our sugar supply, and some fish into our animal food supply; but essentially we have not seriously shifted the movable weight on the food balance so far as our necessary calories are concerned except perhaps to lessen their excess. C. F. Langworthy, chemist to the Department of Agriculture, Washington, is quoted as saying that we ordinarily eat three times as much meat as we need and that saving is possible is seen in the fact that Canada's excess meat export last year with fewer animals grown was enough to feed 500,000 soldiers at the front.

Now with these facts before us we naturally enquire what changes have taken place in our use of foods. All will at once turn to what he is personally cognizant of, viz.: the war garden. Professor Taylor in illustrating the means by which hard-pressed Germany has been able to carry on, tells us that her population through each urban dweller having been given a plot of suburban land to cultivate, has supplied at least 30 per cent of the food necessary for their sustenance. How much this has meant will be understood when we remember that before the war 70 per cent of the whole population in Germany was urban. Now in less degree, indeed, because the necessity has not been so pressing, all have turned to war gardening in America. It is difficult to get complete statistics because so many people have simply enlarged their previous former gardening and these have been of course the most efficient. However, the Food Board of Canada reports an estimated total of 15,000 acres under cultivation in 1918 based on five times the acreage in 1917.

In the Northern States and Canada undoubtedly the greatest increase has been in the potato crop. Germany indeed has long appreciated the value of this source of food. Professor Prescott's analysis gives the following results:

Potatoes.	Per cent.
Water	78.3
Protein	2.2
Fat	0.1
Hydrocarbon	18.0
Ash	1.0

Calories per lb., 385

Bananas.	Per cent.
Water	75.3
Protein	1.3
Fat	0.6
Hydrocarbon	22.0
Ash	0.8

Calories per lb., 460

Fortunately it is food so simply grown that many of the wage-earning class have been able to provide enough to supply

their own household requirements, while cooked in the usual way it serves as the most important item in replacing our bread supply. There is, however, no food whose useful possibilities have been more restricted in America, than the potato. With 80 per cent of water and sold generally at a low price, the cost of transportation of the raw product limits its use largely to its home district. By dehydration or drying and its conversion into chips or potato flour it could become here as well as in Germany one of the most important sources to replace wheaten flour as a food for our people. How important these alternative food supplies are may be judged from the fact that the saving of a single pound of bread in America per person weekly will increaes the wheat export by 100,000,000 bushels annually.

Incidentally it may be stated that the use of the sweet potato and the banana in the South is in the same category and, as Professor Prescott states, the banana at 5 cents per pound is next to dried beans and bread the cheapest food when measured in calories or fuel value. But the war garden has played a further use in its supplying food during the summer from the earliest onions, lettuce, beets, peas, and beans, to the later corn, tomatoes, carrots, parsnips, and celery, all of which in succession have supplied material for canning and drying up to the needs of the many householders. In addition to home products, it is probable too that the output of the canning companies in these and other vegetables and fruits has been notably increased and will be made ancillary, as canned goods, to the overseas supplies for the army.

In addition to the war gardens Canada has seen during the year a very notable increase in the home consumption of fish. With an abundance of meats from homegrown animals the Canadian people, chiefly located inland, have preferred through convenience to eat animal rather than fish food. The increase in the number of fishermen and the capital invested in fishing showed no marked increase in the decade 1900–1910. Possessed on both coasts of probably the most valuable fisheries in the world, both on account of the climate and the indented character of the coasts, Canada until only recently, owing to other more attractive or less strenuous occupations, has allowed this great source of food and wealth to remain undeveloped in proportion to its possibilities. Enormous supplies of a variety of edible fish as halibut, sole, skate, and flat fish exist in Canadian waters; while in the Great Lakes and the thousand inland lakes of the Laurentians immense quantities of the best fresh water fish are available. To indicate how rapidly this source of food supply has been utilized, it may be stated that since the Food Board took up the matter seriously, the number of licensed wholesale fish establishments in Canada increased from 900 to 1,550, including 900 headquarters; while 55 per cent of the total western fish catch was consumed at home as compared with 15 per cent the previous year. A single trawler caught 120,000 pounds of flat fish and cod in eight days off the North British Columbia Coast which were frozen when landed, when not sold for immediate consumption; while cod and halibut from the west coast sold in Montreal at 12½ cents per pound and mackerel from the Atlantic was sold at similar prices. Indeed in May, 1918, the fish consumption of Canada was one pound per week per capita, and 8,500,000 pounds were sold in the first five months of 1918 as compared with 5,000,000 pounds last year.

In no item perhaps have the people of this continent been more disturbed than in the restriction of the sugar supply.

Sugar since the early days of sorghum and sugar cane in the South and maple sugar in the North has been used much as salt or any other condiment. In spite of occasional medical warnings as to its injurious effects if used in excess, from babyhood to old age, our people have cultivated a sweet tooth. The old time candy stick and candy crystals may have been replaced by more expensive chocolates and other confections; but sugar is used everywhere from the pickaninny who chews sugar cane to the Northerner, who from using maple sugar has looked upon sugar as an elementary food. There is little doubt, however, that its restriction to some extent through being replaced by oatmeal, barley, meat, peas and beans, with more use of milk would prove a distinct benefit to the growing children of our continent, whose sweet tooth has been allowed to control indulgent mothers rather than the knowledge that the proteins and fats are much more essential to the development of the growing animal.

A word need be said regarding the use of milk and milk products. The value of milk as a complete food for children and for general use in a mixed diet is everywhere accepted, and it is now only a question of obtaining it in sufficient quantity and quality at any reasonable price. We are all familar with the struggle that has gone on between the producers and milk-dealers on this continent during the past two years. It is stated that 30 per cent of the milch cows in New York state instead of the usual 17 per cent were slaughtered in 1917. The demand for meat was so great and prices so high, cattle food so costly and labor so scarce and expensive, that the farmer seemed perfectly determined to either get much more for the milk or go out of the business. The evidence from the Chicago official investigation seemed to prove that a similar situation has everywhere existed. Statistics are difficult to obtain; but it is probable that in no one particular have the infants and children of the poorer people been affected more seriously than in a lessened milk supply; while as for eggs, their use would seem to have been restricted largely to the wealthy and to those provident householders, who have kept a dozen hens and fed them on garden and household refuse. If milk foods, such as cheese, have been increased for export as war food at the expense of the children's food, it could only be excused on the ground of some pressing necessity, but we have good evidence to know that the milk problem was serious before the war and will only be solved when it is managed as a municipal utility as to quantity and quality and distributed on some basis as efficiently as is public gas, electricity, coal and water. If the evolution of society is to make three-fourths of the people non-producers of food and urban residents, then public safety and efficiency demand that food, the first item in the life of the people, be regulated as carefully by government, whether general or municipal, as the quantity and quality of the water and other liquid supplies.

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ISOLATION OF THE ANTHRAX BACILLUS FROM SHAVING BRUSHES.

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and
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Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 9-12, 1918.

ABOUT three years ago the rather startling observation was made in England that shaving brushes may serve as a vehicle for the organism of anthrax and convey this infection to man. This peculiar mode of infection was made the subject of a very exhaustive study by English sanitarians. A report on the subject was made in 1917 to the Local Government Board.[1] Sixty-five cases were described, sixteen of which could with certainty be traced to infected shaving brushes. Other reports pertaining to this mode of infection were prepared by Elworthy,[2] Eastwood,[3,4] and Newsholme.[5] A brief review is contained in United States Public Health Reports 33, No. 28 (July 12, 1918).

Among the English troops in France 28 cases of anthrax occurred from 1915 to February, 1917. From the beginning of the war up to February, 1917, 18 infections with anthrax occurred among the troops in England. The most thoroughly studied series, however, was that of 19 civilian cases in Great Britain. In most of these cases the proof of the source of infection was absolute, and in the other cases the circumstantial evidence was very strong.

It is not surprising that the possibility of infection from this source has escaped attention. Probably such infections have occurred in the past but the number of cases must have been small indeed. The subject of anthrax infection through the medium of shaving brushes is of interest because it presents a novel means of infection. Following the mobilization of large forces in the warring nations the demand for shaving brushes soon exceeded the supply and bristles from questionable sources were employed in their manufacture. The outbreaks of anthrax reported followed as a logical consequence.

Recently, cases of anthrax due to the use of shaving brushes occurred among the troops in various training camps in this country and the Public Health Service was called upon to investigate the market supply.

Attempts to isolate the anthrax bacillus from infected materials of various sorts apart from the animal body have been made in the past on numerous occasions, but the cases of successful isolation cited in the literature are rather rare. The principal reason is that anthrax spores in infected material are, as a rule, present in small numbers while saprophytes predominate. Nevertheless, the presence of anthrax outside the animal body previous to the English investigations has been proven by Gruber,[6] Heim,[7] Russ,[8] Theodorov,[9] Reichel[10] and Grabert.[11] Rembold[12] found anthrax in the dust of a tannery, Silberschmidt[13] in the dust of a horsehair spin-house, and Schnuerer[14] in hay. Gruber[6] recommended heating of the bouillon suspension for 15 to 30 minutes at 60° to 70° C. in order to destroy the vegetative forms. In order to eliminate the spores of malignant edema, if such should be present, Gruber incubated the bouillon previous to heating for some time under strictly anaërobic conditions. The vegetative form of malignant edema resulting from this incuba-

tion succumbed to the subsequent heating process. The process of isolation of anthrax varies, of course, with different observers. Generally an emulsion is prepared with sterile saline or bouillon. The emulsion is heated, but not boiled, and the resulting suspension subjected to the usual cultural tests and animal inoculations. Since the number of anthrax spores may be very small Schnuerer is very much in favor of concentrating the suspension by the aid of a centrifuge. Gruber concentrated the bacterial suspension by the addition of coagulents, such as are employed in water purification. The resulting floc carried with it practically all of the bacteria. Schnuerer has been successful in recovering anthrax from a hay infusion evaporated to a small volume in vacuum at 90° C. Eurich,[15] who has had a very extensive experience in anthrax isolation, recommends heating the hair in water containing five per cent potash to 80° C. to form soluble albuminates. This would seem hardly necessary as a routine procedure except where one deals with materials greatly soiled with animal dirt.

Various methods have been employed at the Hygienic Laboratory for the isolation of anthrax from suspected shaving brushes. A preliminary trial of direct broth planting with subsequent animal inoculation, such as is used in the routine testing of vaccine virus for tetanus, demonstrated the presence of tetanus in two out of six brushes examined in this way. The procedure finally adopted was as follows:

About one-half of the bristles of a shaving brush were cut off with a sterile knife and placed in a sterile mortar where the content was macerated with approximately 50 cc. saline. The resulting suspension was pipetted into flasks or large test tubes. Different portions have been heated at various temperatures from 65° to 90° for 10 to 30 minutes. Eighty degrees for 10 to 30 minutes appears to be a satisfactory exposure to destroy vegetative forms.

If it is not possible to use the greater part of the material in animals and plates, the concentration of the bacterial suspension by sedimentation has much in its favor. We used a fractional sedimentation to eliminate the larger and heavier particles after grinding. The saline suspension was injected subcutaneously into mice, in doses of 0.5 cc. to 0.1 cc. and into guinea pigs in doses of 2 cc. to 12 cc. Agar plates were also prepared from the suspension in sufficient dilution to show good distribution. Satisfactory plates could ordinarily be obtained by proceeding in the following manner: One cc. of the saline suspension was diluted with 10 cc. of saline. One cc. of this diluted suspension was intimately mixed with 10 cc. of liquefied agar for the first plate and one cc. of this seeded agar was placed into a second melted agar tube for another. Of the two plates one, as a rule, showed good distribution of colonies. This procedure has to be modified in accordance with the material to be examined. Badly polluted material requires more and higher dilutions. The plates were incubated over night and suspicious colonies, particularly deep colonies, searched for with the low dry objective. (See Fig. I, II and III.) There are many colonies which simulate surface anthrax colonies, but after some experience the selection of these also proves less difficult. The suspicious colonies are fished on agar slants and studied morphologically. A saline emulsion is prepared from the 24-hour growth on the agar slants and 0.2 cc. injected into two mice. The mice which die are necropsied, smears prepared from the heart's blood and spleen, also agar plates are made. One loopful of material into the first agar tube, and two loopfuls from this tube into a second usually re-

sult in good distribution. The smears are stained by Gram's method and examined for large bacilli, frequently in pairs or very short chains, sometimes showing a capsule, and often with gram-positive elements within a gram-negative ground substance.

From the plates, typical colonies are transferred to slants, from which further identification takes place. The organisms found were pathogenic in very small doses. With an organism possessing the ordinary characteristics of the anthrax bacillus, this is perhaps the most important point in identification. One one-hundred thousandth of an agar slant was fatal with our strains. Identification by means of specific serum protection proved unreliable, due, apparently, to the high virulence of the cultures. Previous workers have found in testing anti-anthrax serum for protective value that it is necessary to use cultures of relatively low virulence for the species of animal employed. Besides high pathogenicity, the presence of edema and the enlarged spleen, with characteristic invasion of the tissues in smears or sections, are found in some of the animals infected. Occasionally, however, the smears are atypical, showing bacilli in such scant numbers that postmortem invasion is suggested. Stab cultures into gelatin were prepared to observe the fur-tree growth. Bouillon cultures were made to observe the stringy growth which quickly settles to the bottom of the tube and which is so characteristic of anthrax.

Of the nine shaving brushes from various sources and of various types examined in this way, three, of different types, were found to be infected with anthrax. Two of the anthrax-bearing brushes were purchased in the open market and had no known relation to any cases of the disease. The third was presumably the source of infection in a human case, having been used but a few times before the man developed a malignant pustule in the shaving area. Of six animals, inoculated with suspension from the free part of the bristles of this brush, only one succumbed to anthrax, and no anthrax colonies were found in the plates from the original suspension. The butt ends of the bristles imbedded in the handle of the brush were then macerated and 24 animals were inoculated with this suspension; 12 of these died in less than 4 days with anthrax septicemia.

This was taken to prove that the brush was not merely infected by the user in shaving after the pustule had developed, but that the bristles themselves originally carried anthrax. The agar plates made from the butt end of the bristles indicated that there was some soluble substance in the binder or cement which inhibited the growth of micro-organisms in artificial media.

The recognition of the anthrax colony in the agar plate is one of the most important parts of the technique, and perhaps the most difficult part to the inexperienced. At first many colonies are fished which later on prove to be non-pathogenic. There are several species which closely resemble anthrax colonies. Even true anthrax colonies will vary in appearance on the plates. Markoff[16] examined 53 strains of true anthrax and he described 5 varieties which differed in appearance on agar plates, in bouillon, in gelatin stab cultures, and morphologically. Markoff claims that it is easy to propagate new varieties artificially, depending upon the age of the culture, the choice of medium, the temperature, moisture content of the air, and inherent cultural tendencies of the strain. A typical surface colony appears at first as a small, round, grayish white spot which spreads out generally. Often, however, the contour will be irregular with projec-

tions of bundles of filaments and cords. Under the low power the typical Medusa-head appearance seldom fails to show. The colonies must be examined early, however, since they have a tendency to

FIG. I. Edge of deep anthrax colony showing ringlets like locks of hair; 24-hour agar plate.

disintegrate, thereby losing their characteristic appearance. Reichel[17] states that anthrax-like colonies lost their stringy appearance on repeated re-cultivation while pure anthrax does not. It has been the experience of Eurich[15] of the Bradford Anthrax Investigation Board in Yorkshire, England, that the deep colonies are much more characteristic than the surface colonies and in this respect our observations bear him out fully. As Eurich states, this fact seemed to have escaped the German workers on anthrax. Lehmann and Neumann's "Atlas of Bacteriology," Vol. 1, shows an unsatisfactory sketch of a deep colony. A sketch somewhat simulating a deep colony also appears in connection with an article on anthrax by Reichel.[16] These deep colonies can be characterized as having the appearance of gonorrheal shreds in a urinary sediment. They should be searched for in a 16- to 24-hour plate with a low-power objective, under a magnification of about 50 diameters. Very often one finds elliptical, slightly brownish bodies or disks interwoven with the threads. The deep colonies are never round but usually show irregular threads branching off from the center in different directions. Even the macroscopic appearance of the deep colony is much more

FIG. II. Deep anthrax colony showing ringlets; 24-hour agar plate.

"fuzzy" than that of the surface colony. It is hardly likely that these deep colonies have been overlooked by the previous observers. It is certain, however, that these observers did not attach to these colonies the diagnostic importance which they deserve until Eurich called attention to this fact. When true anthrax is present it does not appear to be difficult to ob-

tain deep colonies; they are usually plentiful and the appearance of such a plate is characteristic. Deep colonies often crop out to the surface and the filaments on the surface show the stringy Medusa-head appearance. One may well compare the microscopic appearance of a surface colony to a well-groomed coiffure and that of a deep colony to an untidy one. The deep colonies also change on exposure

FIG. III. Similar colony focussed at surface level. The skein-like structure of the superficial colony is visible. The skeins may be seen in many colonies not anthrax, but the ringlets of deep colonies are characteristic.

as do the surface colonies but the change does not take place as rapidly. It often happens that the plate fails to reveal the organism while the animal inoculation proves positive. In such a case a pure culture can be obtained from the spleen, heart, or kidney provided the animal died of anthrax. No test should be regarded as conclusive without complete proof of cultural characteristics, morphology and virulence. Microscopically there are many organisms which simulate anthrax and this, coupled with the fact that anthrax often develops atypically, makes it difficult to make a diagnosis from the morphology of a stained preparation alone. The capsulated thick rod from the spleen of the test animal has been obtained in the three cases in which isolation from the shaving brushes has proven successful. This capsulated appearance is characteristic and we have not noted it in artificial cultures. Fairly long chains have been observed rarely except in artificial cultures. Spore formation is shown best on agar. Under low magnification the spores may give the colony a dotted appearance. One word may be said about the gelatin and bouillon cultures. It is known, and it has been noted in connection with this investigation, that the fur-tree growth in gelatin is not always characteristic, and, as a matter of fact, may not appear typically at all. With the three strains isolated from American shaving brushes the growth in bouillon has been found to be of greater differential value than the gelatin growth.

The high resistance of the human organism to superficial infection with anthrax is indicated by the fact that, in spite of numerous infected brushes being in use, no civilian case of anthrax from this source has been reported to the Federal authorities. It is of course possible that a few cases have occurred but have not been recognized as promptly as in the military camps.

To prevent infection from brushes of uncertain origin, it is advised that such brushes be soaked for four hours in a 10 per cent solution of formalin (the solution to contain approximately 4 per cent formaldehyde) at a temperature of 110° F. and so agitated as to bring the solution into contact with all portions of the hair or bristles.

To obviate the manufacture of infected hair and bristles into brushes, the follow-

ing amendments have been added to the Interstate Quarantine Regulations.

"SEC. 39. No person, firm or corporation shall offer for shipment in interstate traffic, and no common carrier shall accept for shipment or transport in interstate traffic any shaving brush or lather brush unless manufactured in accordance with these regulations."

"SEC. 40. Shaving brushes or lather brushes shall be made only from hair or bristles known to be free from anthrax spores."

"SEC. 41. Unless hair or bristles are known to be free from anthrax spores before such bristles are made up into shaving or lather brushes, their disinfection shall be accomplished by one of the following methods: (a) by boiling the hair or bristles for not less than three hours; (b) by exposing the hair or bristles to steam under not less than fifteen pounds gauge pressure for not less than thirty minutes with a preliminary vacuum of not less than ten inches before turning on the steam; (c) by exposure to streaming steam for not less than six hours."

"SEC. 42. All shaving or lather brushes shall be permanently marked with the name of the manufacturer or with a registered trademark in order to insure identification of the manufacturer and enforcement of these regulations."

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[17] Reichel: Centralbl. Bakt. Parasitenk. 1. Abt. Ref. Vol. 50, p. 83 (1911) Fig. 3.

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TOLL OF THE DEGENERATIVE DISEASES—A PLAN FOR ITS REDUCTION.

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Read before the Section of Vital Statistics, American Public Health Association, at Chicago, Ill., December 9–12, 1918.

DURING the last fifty years the great battles of the sanitarian have been fought in the field of infectious diseases. With the growth of knowledge concerning their etiology, pathology and consequently their epidemiology, he has won most notable victories, so that infectious diseases are gradually diminishing in importance as causes of death. In the first 15 to 18 years of life the mortality has been almost halved. Coincident with this there has been a gradual rise in mortality above 43, and for the age group 45 the mortality is greater now than it was ten years ago. It is essentially at these periods of life when the metabolic processes are slowing up, when the human machine begins to show the effects of wear and tear, that vascular disease and the other so-called degenerative diseases begin to manifest themselves.

With the demand of the infectious diseases becoming less acute, workers in preventive medicine are turning their attack upon the group of cardio-renal vascular diseases. Whether these are actually on the increase or whether the rise in morbidity and mortality is only relative, the fact remains that they are among the leading causes of death and therefore, from the standpoint of preventive medicine, worthy of intensive work.

The leading cause of death in the registration area of the United States for the year 1915 was the disease group classified as "organic heart diseases and endocarditis" with a rate of 156.2 per 100,000 of population (1). The second on the list was tuberculosis (all forms) with a rate of 145.8 per 100,000. Nephritis and Bright's disease was fourth in the list with a mortality of 104.7 per 100,000. In the fight against tuberculosis, millions in money and a vast amount of energy have been expended; against the leading cause of death, intensive work is just beginning. Not that every cent in money and every ounce of energy brought to bear in the fight against tuberculosis is not well spent, but that too little effort has been directed against the degenerative diseases.

There is of course a definite reason for this situation. In the case of tuberculosis we are fairly familiar with the etiology and are beginning to appreciate the means by which infection is spread. Consequently, a fairly satisfactory method of attack has been worked out. The treatment is also much more satisfactory. The newer clinical and laboratory studies and a keener appreciation of older clinical principles offer a hopeful basis of attack in the case of chronic cardio-renal diseases, both along lines of prevention and treatment. Another factor is to be considered in this connection. The manifestations of tuberculosis are easily recognizable in the advanced stages and greatly dreaded; the degenerative diseases are more often insidious in their development.

It has been repeatedly emphasized that deaths from such diseases as typhoid fever and tuberculosis occur in the prime of life, while those from the degenerative diseases occur beyond middle age. Therefore, a life saved from either typhoid fever or tuberculosis is of much greater economic value than one saved from the degenerative diseases. If the vast majority of deaths from degenerative diseases occurred beyond 60 years the above statement would be fair, but a not inconsiderable proportion occur between 20 and 40. Prof. Irving Fisher (2) has estimated on the basis of statistical investigation that the period 17.5 to 60 years represents the average working or wage-earning period of life in the United States. Table I, taken from the United States Mortality Statistics for 1915, shows a comparison of the number of deaths from organic heart disease and Bright's disease in the registration area of the United States, and certain infectious diseases for the ages 20 to 60 by 10-year groups.

TABLE I.

	Deaths at age of			
	20 to 29	30 to 39	40 to 49	50 to 59
Typhoid fever	2,295	1,400	856	568
Tuberculosis of the lungs	22,173	19,841	14,161	9,023
Organic diseases of the heart	3,211	5,360	8,686	13,884
Lobar pneumonia	3,265	4,323	5,407	6,153
Bright's disease	1,909	3,992	7,420	11,832

From Mortality Statistics, Bureau of Census, 1915.

The largest number of deaths from typhoid fever in 1915 occurred between the ages 20 to 29, but within the same age group there were twice as many deaths from organic heart disease and Bright's disease combined.

It is true that the greatest number of deaths from pulmonary tuberculosis occur within the age group 20 to 29, while those from organic heart disease and Bright's disease fall within the period 50 to 59. The curve of mortality from pulmonary tuberculosis reaches its height at the age period 20 to 29 and after that gradually declines, because those who have survived the age of greatest incidence possess an increased resistance. The curve of mortality from the degenerative diseases reaches its maximum at the age period 70 to 79, because after 70 they become natural causes of death. All such deaths should be considered preventable, and a sufficient number occur within the period of greatest productiveness to make them highly worth saving.

Lobar pneumonia caused fewer deaths in all the age periods considered than the degenerative diseases combined. There is here a wide field for preventive work, awaiting only a practical and efficient method of attack.

That during the period past middle life the activities of the individual are on the decline, applies largely to the industrial population. Many of our most prominent men, after years of training, have become expert in their professions and valuable members of society to die of one of the degenerative diseases at the height of their economic usefulness.

Toll of the Degenerative Diseases.

1. In Lives.

It is comparatively easy to arouse the public over a disease condition which is spectacular in its manifestations. For example, a mad dog on the street invariably creates a panic followed by a vigorous dog-muzzling campaign. Especially is this true, if an unfortunate victim dies of hydrophobia. On the other hand, a disease like typhoid fever, exacting an annual toll of 20,000 lives and 300,000 cases of illness was looked upon as a sort of necessary evil, and it required years of hard fighting to arouse public sentiment to the necessity of hygienically pure water supplies.

As a basis of calculation and for comparison, we shall follow the outline of Prof. Irving Fisher (3) in his estimate of the cost of tuberculosis in the United States, and for simplicity limit ourselves to the two groups of diseases Classified in the International List of Causes of Death as "organic diseases of the heart" and "Bright's disease and nephritis."

In 1915, organic diseases of the heart caused 99,053 deaths in the registration area of the United States being the leading cause of death, with a rate of 147.1 per 100,000 of population. Bright's disease and nephritis was responsible for 70,500 deaths with a rate of 104.7 per 100,000.

The registration area in 1915 represented a population of 67,336,992 (estimated). The total population of the United States in the same year was 100,399,388 (estimated). The registration area therefore contained 67.1 per cent of the total population, or a little more than two-thirds. The death-rates from the diseases under consideration in the non-registration area were certainly greater than in the registration area, principally because communities backward enough to have incomplete registration of births and deaths are likely to live under poor hygienic conditions and have correspondingly poor medical care. Assuming that the same rate obtained throughout the country, we have an additional 33,000 deaths from organic disease of the heart, and 23,500 from Bright's disease and nephritis, or in round numbers, an annual toll in the United States of 132,000 deaths from organic heart diseases, and 94,000 deaths from Bright's disease and nephritis. No claim for absolute accuracy is made in these figures, but the error is probably on the side of conservatism.

To gain some idea of the relative proportion

of mortality from cardio-renal diseases and other causes of death, Table II shows the number of deaths in the United States registration area for the year 1915, from organic heart diseases and from Bright's disease and nephritis, compared with the number of deaths from certain well-known acute infectious diseases against which a large share of sanitary effort is directed. The chronic degenerative diseases caused five times as many deaths as typhoid fever, measles, scarlet fever, whooping cough and diphtheria combined.

TABLE II.

	Registration Area	Rate per 100,000
All causes	909,155	....
Typhoid fever	8,332	12.4
Measles	3,649	5.4
Scarlet fever	2,419	3.6
Whooping cough	5,421	8.1
Diphtheria and croup	10,544	15.7
Tuberculosis (of lungs)	82,853	123.0
Organic heart disease	99,053	147.1
Pneumonia (total)	55,825	82.9
Bright's disease	64,480	95.8

From Mortality Statistics, Bureau of Census, 1915.

The figures show that there were in 1915 almost 25,000 more deaths from chronic degenerative diseases than from tuberculosis of the lungs and pneumonia combined. The death-rate from organic heart disease exceeds that from pulmonary tuberculosis, while Bright's disease exceeds pneumonia (all forms). Tuberculosis of the lungs was responsible for about 9 per cent of all deaths; pneumonia about 6 per cent. Organic heart diseases constitute about 19 per cent of the total deaths and Bright's disease 7 per cent, making a total for both of 26 per cent compared with 15 per cent from tuberculosis of the lungs and pneumonia.

In an analysis of the death returns in New York City for 1914, Wynne and Guilfoy (4) found that of all occupied persons 15 years and over (both sexes), organic heart disease caused 17.9 per cent of all deaths. Bright's disease was responsible for 9.4 per cent. The degenerative diseases, including cerebral hemorrhage and apoplexy made up about 30 per cent of the entire mortality. Pulmonary tuberculosis caused fewer deaths than organic heart disease, the total number being 8,597 as compared with 9,616 or 16 per cent as against 17.9 per cent. Taking the group as a whole, the comparative mortality is 16 per cent as against 30 per cent or a little more than half. There is little reason to doubt that the conditions in New York are representative of those throughout the country. Chart 1, based upon the table given by Wynne and Guilfoy, shows in a graphic way that the greatest mortality from the degenerative disease occurs two age periods later than that of pulmonary tuberculosis, the figures of the one being almost complementary to the other. So that while the actual number of deaths from degenerative diseases is larger than those from pulmonary tuberculosis, the economic loss is less. However, we would again call attention to the number of deaths from degenerative diseases occurring between the ages of 20 and 40. (Table I).

CHART I.

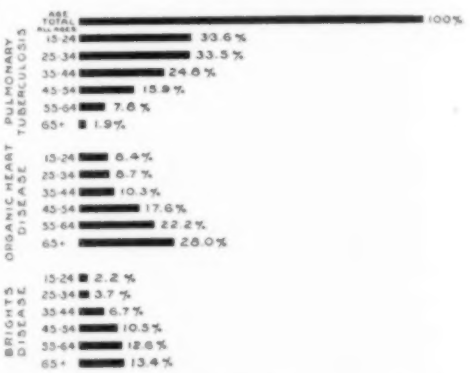

CHART 1. Showing the relative proportion of deaths from tuberculosis (of the lungs) as compared with organic heart disease and Bright's disease by age groups occurring among occupied persons 15 years and over, in New York City, 1914. Plotted from table given by Wynne and Guilfoy (*loc. cit.* in text).

2. Estimated Monetary Loss.

Although attempts to express dissipated vital capital in terms of monetary loss are beset with statistical difficulties, nevertheless they are a useful means of showing in a familiar and striking manner, losses which mean very little to the public when expressed in numbers of lives lost.

Again referring to Professor Fisher's esti-

mates of the cost of tuberculosis in the United States, we find that the average consumptive loses 21 years of working life. Since the bulk of mortality from consumption falls within the age group 20 to 39, while that from degenerative diseases is about 40 to 59, we may conservatively estimate that the average death from the latter deprives the individual of ten years of useful work. Using Fisher's estimate of $700 as the average income of working men in the United States, and basing the calculated loss on 163,533 deaths from degenerative diseases during 1915, we find a loss in earning capacity amounting to over $1,140,000,000. This does not include the actual financial loss due to medical attendance and wages during the periods of partial and total disability, which usually are long. It is impossible to even approach an estimate of the latter. Hospital statistics are not available and dispensary statistics are almost worthless.

Outline of Method of Attack.

The problem of control of disease resolves itself into an effort to remove the factors in its causation. The greatest success has attended the fight against those infections with whose etiology we are most familiar. Only recently have we obtained sufficient knowledge of the etiology of chronic degenerative diseases to place them definitely within the class of conditions with an infectious basis.

The most important factors in the production of cardio-renal-vascular disease are infections and intoxications (chemical and metabolic). Of the infections, syphilis is an important cause of cardio-vascular pathology in early middle life. The conditions occasioned by our military preparations have brought the venereal peril strikingly into the foreground, and adequate measures for its control are under way. Among non-specific infections it has been recognized within recent years that chronic focal infections are an important factor. With the accumulation of evidence, clinical and experimental, we are assuming a more rational attitude toward chronic focal infections and are realizing that in the etiology of many conditions, they are not the sole factor and represent but one link in the chain, although it may be the key link.

It has been recognized by pathologists for a long time that acute infectious fevers are not infrequently accompanied by damage to the endocardium or heart muscle or both. The etiologic relation of acute rheumatic fever and certain forms of endocarditis, especially of the mitral valve, is thoroughly established both clinically and experimentally (Billings, Rosenow). The clinical studies of Thayer (5) have demonstrated the effect of typhoid fever on the vascular system.

The pathologist is familiar with the cloudy swelling of the parenchymatous organs so frequently seen in autopsies on persons dying of acute bacterial intoxication. It seems reasonable to suppose that similar changes, less marked, occur in individuals who recover. Thus, severe attacks of "la grippe," septic sore throat or severe attacks of coryza if repeated, probably leave their mark upon the vascular system, each leaving it somewhat impaired. One attack may damage the kidneys slightly, another the myocardium, neither producing sufficient injury to cause immediate disability, but the sum of such repeated infections producing its effect about the middle period of life when the normal degenerative changes begin.

How do the bacteria in acute infectious diseases produce their deleterious effects? They reach the various tissues by way of the vascular system and damage the vessels, especially the arterioles. This leads to an interference with the blood supply to the part and a consequent lowering of the oxidizing capacity of the tissues which in turn brings about a condition of acidosis. Whether the condition becomes generalized or remains localized is determined by the severity of the infection. The severe infections are more likely to produce a lowering of the "buffer content" of the blood and a general acidosis. Chronic acidosis leads to chronic degenerative changes in the vascular system and in the kidneys as a part of this system.

It is interesting to note the changes in the conception of disease with the growth of medical knowledge. Until recently, those holding that a disease was due to metabolic disturbance carried the burden of proof. A closer analysis of the mechanism by which bacteria

produce disease has shown that a disturbance in metabolism of the body is after all the fundamental cause of all disease processes, although the disturbing agent may be bacteria.

The chemical intoxications, notably lead poisoning, have been intensively attacked by the industrial hygienist with good result.

The second great etiologic factor in producing chronic degenerative disease, and rather closely related to the first, is chronic fatigue. In a recent investigation made by the Division of Sanitation, Bureau of Medicine and Surgery, Navy Department (6), the following statement appears: "Physical fatigue from the standpoint of preventive medicine must be given careful consideration as one of the important etiological factors tending to lower blood and tissue resistance to infectious diseases, with especial reference to cerebro-spinal fever, lobar pneumonia and other coccus infections.

"Epidemiological investigations indicate that body fatigue plays an important rôle, potentially, in an outbreak of communicable disease. . . . Probably the lowering of resistance resulting from fatigue is also to be explained on the basis of an acidosis. Apparently metabolism is at its maximum efficiency when the acid-base equilibrium is normal. Any disturbance toward the acid side, in some as yet unknown way, produces conditions favoring bacterial infection. Apart from its relation to infection, chronic fatigue hastens the onset of senile changes in the vascular system, and consequently in the body as a whole.

On the clinical side, much can be done in the way of prevention. If it were possible to keep all patients with acute fevers in bed during the febrile period, much unnecessary damage to the vascular system could be avoided. Every case of tonsilitis should be in bed until the temperature is normal, and carefully watched during the period of convalescence to guard against cardiac complications. Osler long ago noted that in chorea, endocarditis was especially prone to complicate ambulatory cases and those that were physically active during convalescence. The same is true of all acute infectious fevers, any one of which may damage the cardio-renal-vascular system. Clinicians have long known that in the case of syphilis the organism may remain latent for years to manifest itself in early middle life in the form of aneurysm or cerebral-vascular disease, yet they are only beginning to realize that any organism of low virulence may produce no symptoms of active disease and yet manifest its effects later in chronic degenerative disease.

General Discussion and Summary.

The fight against chronic degenerative diseases does not imply in the least measure a letting up against infectious diseases. On the contrary every victory in the one field is also a victory in the other, for they are closely related. The degenerative diseases are the manifestations of the accumulated effects of the infectious diseases on the individual. Nor is there reason to believe that the degenerative diseases are increasing to such an alarming extent that we are in danger of undergoing physical deterioration. There is, however, a field for preventive work against the mortality from chronic degenerative diseases, especially in the age periods 20 to 40, worthy of considerably more attention than it has received.

In view of the facts we have attempted to bring out, a logical program for fighting the chronic degenerative diseases would be based upon the following:

First and fundamentally important, is the gathering and collation of such vital statistics bearing upon the subject as are available, together with a vigorous campaign for complete morbidity and mortality statistics, especially among our public institutions. It is a sad commentary on the condition of our vital statistics that the insurance companies are the only ones who possess complete records.

Second, educating the general practitioner to the possible serious consequences of mild infections. In the words of Janeway, (7) "The need for the moment, therefore, is for more knowledge; not more knowledge of the dangers of circulatory diseases for the public, which means propaganda, but more knowledge of their causes for the physician, which means ceaseless investigations." The public is largely dependent for its medical knowledge upon the physician; with the realization by the latter of the seriousness of repeated low-

grade infections and particularly chronic fecal infections, there would naturally follow an appreciation by the public of the same facts.

Third, provision for adequate medical attendance for the entire population, with appropriate sick benefits. It is well known among the medical profession that the very poor and the wealthy receive the best medical attention. The bulk of the population, the wage-earners, get the worst. Whether proper medical service be obtained by an adequate government health insurance system, or by a change in medical practice whereby people will pay for preventive medical attention, makes little difference if the desired result follows. As a corollary to this is the extension of the periodic physical examination to include the whole population. This has turned out to be an excellent investment for those insurance and industrial corporations that have adopted it.

Fourth, the elimination, as far as possible, of the factors of fatigue and various intoxications from the industries.

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The Epidemic of Influenza-Pneumonia at Camp A. A. Humphreys.—Beginning September 13 a serious epidemic of influenza-pneumonia developed at Camp A. A. Humphreys. The epidemic lasted until October 18 during which time 16 per cent of the camp had influenza and 28 per cent of the influenza cases developed into pneumonia. Of the influenza cases, 10 per cent died, but of the pneumonia cases, 35 per cent died. Most of the pneumonias were of the broncho-pneumonia type. Cases of lobar pneumonia were also reported. The population of the camp was 26,600. There were 4,237 cases of influenza and 1,171 cases of pneumonia. The total number of deaths from influenza and pneumonia was 413.

When the disease first appeared in the camp, precautions were taken to prevent its spread. The men were impressed with the seriousness of the disease and told how the virus is spread. Attention was directed against overcrowding, and the prevalence of flies. Body cleanliness was emphasized. Beds were screened from one another, and some attention was also given to the laxity in cleansing dishes. But at no time during the epidemic was the camp under quarantine and at no time were the men restricted in regard to their amusements. Fifty-two per cent of the cases occurred during the third week of the epidemic. During the second week, 22.6 per cent of the cases occurred, and during the fourth week 18.4 of the cases appeared. A study of the incidence rate with relation to overcrowding shows that as a rule, where overcrowding was absent the disease was less prevalent. One of the striking things brought out by the epidemic was that there was a decidedly lower incidence rate among the colored troops than among the white troops, in fact the incidence among the colored troops was only 43 per cent of that among the whites. But there were more complications of pneumonia among the colored troops. Pneumonia proved to be more fatal to the colored troops also. The white troops were housed in regular cantonment barracks which allowed about 50 square feet of floor space per man. The colored troops with the exception of one company, were housed in tents. At first there were six men in a tent. Later this was reduced to five.—Lieut.-Col. I. W. Brewer, *Journal of Laboratory and Clinical Medicine*, December, 1918.

(*M. P. H.*)

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Typhoid Carriers.—The danger of typhoid carriers among food handlers is seldom better illustrated than by the history of an outbreak in September, 1917, of sixty-five cases of typhoid along a certain milk route on Staten Island, New York. A thorough investigation of the source of the milk supply failed to reveal the origin of the infection and furthermore other points to which the same milk was shipped had entirely escaped the disease. Careful inquiry developed that one of the persons employed by the firm distributing the milk had two active cases of typhoid in his family and that he came into intimate contact with these patients. The individual concerned was immediately forbidden to engage in any food handling occupation and inasmuch as the milk supply was not at fault, permission was given to resume distribution which had been stopped the moment the supply came under suspicion. The outbreak was very shortly checked.—*Bulletin N. Y. C. Department of Health.* (*M. T.*)

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THE MEETING AT NEW ORLEANS.

The next meeting of the American Public Health Association is to be held at New Orleans on October 6 to 9, 1919. This Southern city, which patriotically waived its claims in response to war needs, will this year have the meeting that was scheduled for 1917. The breaking out of the war made it desirable to concentrate in consultation in the National Capitol the health forces of the country and the continuance of the war was the reason for calling the meeting of 1918 in that other center convenient to so large a proportion of the leading health advisers, Chicago.

There are many reasons why New Orleans is an admirable place in which to gather the pub'ic health administrators and officials. In the first place, it has one of the oldest boards of health in the country, regularly organized in 1822, with a printed report as early as 1849. In those days it was necessary to have an outbreak of disease to awaken public spirit to the need of even the most fundamental of health measures. Yellow fever was an insistent cause and was the underlying reason for the creation of the New Orleans board; just as, about half a century later, an outbreak of smallpox was the entering wedge for the establishment of the Boston Health Department as a body separate from the City Council.

New Orleans has further claim for a meeting of the association in the fact that it is the principal city in a section of the country that has become exceedingly active in health administration. Handicapped with an insanitary negro factor to its population, of large numerical importance, the South has had a difficult career in the fighting of sickness and deferring of death. With a warm climate, a population largely barefooted and without even rudimentary ideas of home sanitation or personal hygiene, and with soil and other conditions favoring bacteriological activity, it has had an enormous burden, which in these latter years it is shaking off in extraordinary fashion.

A meeting in New Orleans will have for an important subject the consideration of malaria, the developments of the year concerning influenza will also be brought out while the question of unification of health societies will make the third in a trinity of subjects of prime importance to the public health world.

In recent activities towards the health education of the people, the group of Gulf States has been notable. Louisiana has had its railway car health exhibits, and New Orleans its enormous recent developments in rat-proof construction and other public

improvements in sanitation. Texas has taken up the matter of health education through its boards of trade and other public organizations, while Florida, the portal at which the diseases of the Tropics are constantly knocking, has in recent years steadily maintained the standards set for it by its sterling early health officers.

The meeting at New Orleans promises much in the way of sanitary education, not only for the district, but for the rest of the country.

New Orleans has further than this a splendid reputation for its ability to entertain visiting parties. The festivities which mark the opening of spring and other occasions have given it unusual opportunities to care for visitors, whom it treats with open-hearted Southern hospitality. It is true that the association is a body that is strictly attentive to the purposes that bring it together, but there will be nevertheless plenty of chances to take advantage of the good things New Orleans is already planning to offer.

At New Orleans a special effort will be made to carry with the association the annual meetings of other societies of kindred interests, so that in October one may look for a great convention of officers, executives, commissioners and health lovers more important than has ever been gathered at any previous meeting of the association. Mark October 6–9 at New Orleans with red ink in your attention file or office tickler! R.

PUBLIC HEALTH DEPENDS ON YOU AND ME.

It is absolutely true that public health depends on you and me, for the keynote is personal hygiene. Disease prevention in any community rests ultimately on the average man and woman. The community may establish hospitals and clinics for the treatment of tuberculosis, but these agencies will be successful in only limited degree unless the average man practices personal hygiene and takes care to prevent the possible communication of this disease from himself to his family and friends. The community, through its health regulations, may ensure a milk supply safe from typhoid infection, yet the disease cannot be stamped out so long as patients or "healthy carriers," with unwashed hands prepare and handle food to be consumed by others.

That personal hygiene is the keynote of modern sanitation is especially true in respiratory diseases. We have not yet learned how to prevent outbreaks of colds, bronchitis, pneumonia and influenza, but we do know that their spread could be checked if the principles of personal hygiene were universally practiced. At the present time the hope for control of many diseases, which are important among the causes of death, rests with the individual.

In the current epidemic of influenza, there is a great deal that we do not know about its causes and the details of its methods of spread. It is reasonably certain, however, that it is communicated from the sick to the well through methods of contact which effect the exchange of nose and throat discharges. It was Professor Sedgwick who reduced prevention of typhoid to its simplest expression by saying, that it is merely necessary "to keep the bowel discharges of A out of the mouth of B." In influenza it is likewise true that prevention will find a most substantial foundation if the oral discharges of A can be kept out of the throat of B. If this is to be done at all, it must be largely through the care taken by the individual in what is termed, "respiratory hygiene." The responsibility lies with the individual. It is his duty towards his neighbor, on the part of the infected man, to prevent the scattering of his germs among his fellow men; it is his duty to himself on the part of everybody, to guard the portals of entry of his body against the microbes of others.

This is very easy to set down for a principle, but the practice is the great problem that confronts health administration everywhere. It is a problem that is to be solved only with the coöperation of the individual. It is the more important to have this distinctly understood since its sphere of prevention is not limited to influenza, but includes a long list of common infections, which are all of them preventable diseases.

Public health officers must never forget the importance of the sanitary education of their people, while the individual must realize his own far greater responsibility. When the slogan, "Public health depends on you and me," is accepted and acted on, the first great step towards prevention will have been taken.

DONALD B. ARMSTRONG, M. D.

COÖRDINATION OF NATIONAL HEALTH SOCIETIES.

The January issue printed an address read at the Chicago meetings by President Vincent, of the Rockefeller Foundation. Doctor Vincent deplored the amount of unrelated public health propaganda. He pointed out that there are fifty-seven national societies which carry on health activities. Unlike the famous fifty-seven, however, the products of the former do not come from unified establishments and bear no standardized label. He showed that the lack of coördination resulted in overlapping and lowered efficiency and higher operating cost. But a more serious objection in his mind was that the existence of a large number of specialized and unrelated units resulted in the lack of a general coördinated plan. Some phases of public health work were greatly over-emphasized while others were neglected. At times the existence of a special society would lead to the belief that its field was being properly covered and discourage the proper development of the field in question.

Any person who has the interest of public health at heart will recognize the present chaotic condition of the field and the need of better team-play for public health.

To this end Doctor Frankel, president of the American Public Health Association, will ask the presidents of the various health societies to appoint delegates to a conference to be held at Atlantic City, New Jersey, early in June. The National Conference of Social Workers meets in that city June 1–8 and the American Medical Association June 9–13. It is expected that the various societies will be well represented.

The association is likewise issuing invitations to the national societies which conduct conventions to meet in coöperation with the American Public Health Association in New Orleans in October. Doubtless joint meetings can be arranged which will emphasize the advantages of unification from the convention standpoint.

In calling these meetings the American Public Health Association presents no specified plan, feeling that it is better to have the conference itself develop a program than to have any one society present a plan. A. W. H.

NEW CONSTITUTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Following the editorials in this issue is found a revised constitution of the association as adopted at the Chicago meetings. The Executive Committee has expressed the hope that all members of the association familiarize themselves with this. The gist of the more important provisions follows:

The object of the association is to protect and promote public and personal health. Persons and organizations in the United States and countries and islands adjacent thereto are eligible to membership.

The governing body of the association is the Board of Directors which consists of representatives elected by the association and by affiliated state health societies. The terms of directors are for three years and expire in rotation.

Membership is of five kinds: (1) Members; (2) Associate members; (3) Honorary members; (4) Corporate members; (5) Sustaining members.

Active members pay $5 per year and receive the JOURNAL and full association privileges. Associate pay only $1. This membership was established for members of state health organizations who did not desire the JOURNAL. The corporate and sustaining memberships bear minimum dues of $50 each and enable those who wish to contribute to the support of the association to do so.

The Executive Committee, of which the president, treasurer, and secretary are members, conducts the executive work of the association.

The revision of the constitution grants very broad powers to the Board of Directors, including the election of the officers, the determining the time of meetings, and the adoption of fundamental policies. The general membership of the association is, therefore, relieved of the tedium of discussing and settling business policies which require careful thought, some specialized knowledge, and time, which can be with difficulty spared from the scientific meetings.

Experience showed that whereas the election of the Advisory Council consumed much time and energy, that body did not function very well. Therefore, the Advisory Council was abolished and the election of officers placed in the hands of the Board of Directors, which, being a continuous body, can choose more logically than an emergency body elected for the purpose.

It was felt best to facilitate amendments to the constitution and by-laws. Therefore, amendments to the constitution instead of having to wait more than a full year may now be made by the Board of Directors after a notice published thirty days or more before the annual meeting at which action is to be taken. The by-laws may be revised at any annual meeting after twenty-four hours' notice.

With its new form of government the association will be able to function more smoothly and efficiently than before.

With this introduction the reader is referred to the constitution itself which is short and easy to read. A. W. H.

HONORS TO CAPTAIN GUNN

Reports from Paris note that Dr. Livingston Farrand, director of the health education campaign and anti-tuberculosis work in France, has been made an officer of the Legion of Honor, while Selskar M. Gunn of Boston, former secretary of the American Public Health Association, and Alexander Miller have been made Knights of the Legion of Honor.

Professor Gunn was born in London, in May, 1883, and was graduated at Kensington Park College in 1900. At the completion of his studies he came to this country and entered Massachusetts Institute of Technology, from which he received the degree of S. B. in 1905. Since that time he has been a prominent figure in varied lines of health work. During 1905 and 1906 he was bacteriologist for the Boston Biochemical Laboratory, going thence to Iowa as bacteriologist of the State Board of Health and lecturer in the University of the State of Iowa. Next he was appointed health officer at Orange, N. J. Since 1911 he has been in Boston. He was assistant and afterwards associate professor of bacteriology at the Massachusetts Institute of Technology, and in addition during 1912–1914 held the same position at Simmons College. Meanwhile he was secretary of the American Public Health Association and editor of the JOURNAL, from which position he went to France in 1917. He was also, for a period, director of Public Health Education for the State Board of Health of Massachusetts, delivering many lectures throughout the state. He served in 1912 as assistant secretary-general of the Fifteenth International Exposition of Demography and Hygiene and incidentally has been a member of many important health bodies and committees.

His work in France has been in connection with the International Health Board, the Red Cross, and the French Government, in introducing American methods adapted to the psychology of the country, in the interests of anti-tuberculosis work and the lessening of infant mortality. Those returning from France give him the title of captain and accord to his work the highest praise. R.

INCORPORATION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

One of the important matters of special business transacted at the meeting in Chicago was the formal acceptance by the association of incorporation under the laws of the Commonwealth of Massachusetts. This will place the American Public Health Association on a footing quite different from that of the past since it is now legally entitled to receive gifts or bequests. There will now be the opportunity for those who are interested in the advancement of public health and of public health education to make their interest active and effective through contributions to the important matters relative to the health of the people that the Association is developing and will continue to develop as the need for them is made evident.

PROCEEDINGS OF THE FORTY-SIXTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT CHICAGO, ILL., DECEMBER 8-12, 1918.

Constitution and By-Laws.*

ARTICLE 1.
Name.

The name of this Association is The American Public Health Association.

ARTICLE 2.
Object.

The object of this Association is to protect and promote public and personal health.

ARTICLE 3.
Membership.

All persons and organizations in the United States of America, the Dominion of Canada, the Republic of Mexico, the Republic of Cuba, and other American nations, in sympathy with the object of the Association, are eligible to membership; provided, that honorary members may be elected without regard to place of residence.

ARTICLE 4.
Officers.

The officers of this Association are a president, three vice-presidents, a secretary, and a treasurer. The president, vice-presidents, and treasurer shall be elected by the Board of Directors, and shall serve from the close of the annual meeting at which they are elected until the close of the next annual meeting, and until their successors are elected and qualified. The secretary shall be elected by the Board of Directors, and shall serve for such term as it may specify.

ARTICLE 5.
Administration.

Board of Directors. The affairs of this Association shall be administered by a Board of Directors, consisting of the officers, all ex-presidents, one member designated annually by each section, fifteen directors elected by the American Public Health Association at the Annual Meetings, and directors elected by the affiliated societies of the several states of the United States, the several provinces of Canada and the several states of Mexico and Cuba, and other countries represented in the American Public Health Association. The number of the directors elected by the Affiliated State Societies and by the Association shall not exceed one hundred and fifty. It shall be the duty of the Board of Directors at each Annual Meeting to fix the number of directors and also to apportion among the states and provinces on the basis of the memberships of the respective societies, the directors to be elected by such societies. The directors shall be elected for a term of three years each. Five directors shall be elected from those in attendance at each Annual Meeting of the Association, each for a term of three years.

ARTICLE 6.
Meetings.

Meetings of the Association shall be held at such times and places as may be directed under the by-laws.

ARTICLE 7.
Saving Clause.

This constitution shall take effect immediately upon its adoption by the Association, but it shall not be construed to invalidate any act of the Association, or of any officer or committee thereof, done in accordance with the preceding constitution prior to or pending organization under this constitution. All officers, including directors, serving at the time this constitution is changed shall continue in office until the expiration of the terms of office for which they have been elected.

ARTICLE 8.
Amendments.

This constitution may be amended by a two-thirds vote of the members of the Board

* As amended at this meeting.

of Directors present and voting at an Annual Meeting: provided, that the call for such meeting shall have specified the particular amendment which is to be acted upon, and provided also, that no amendment shall be acted upon unless printed or written notice shall have been mailed or otherwise given to every member of the Board not less than thirty days before the beginning of the Annual Meeting at which it is to be acted upon.

By-Laws.

ARTICLE 1.

Membership and Dues.

Section 1. Membership is of five kinds: (1) Members; (2) Associate members; (3) Honorary members; (4) Corporate members; (5) Sustaining members.

A *member* is a person who has been elected to membership in accordance with the by-laws, who is an active worker in the conservation of health, and who conforms to the constitution and by-laws of the Association. An *associate member* is a person interested in the conservation of health, who has been elected to associate membership in accordance with the by-laws, and who conforms to the constitution and by-laws of the Association. An *honorary member* is a person elected to membership of that class, by the Association for distinguished service to the objects for which the Association stands. A *corporate member* is a firm or corporation not engaged primarily in the conservation and promotion of public health, which has been elected to membership of that class by the Association in accordance with the by-laws. A *sustaining member* is a person who has been elected to membership in that class according to the by-laws.

Section 2. The dues of members are $5.00 a year; of associate members, $1.00 a year; corporate members and sustaining members, not less than $50.00 a year. Honorary members pay no dues. Dues are payable in advance.

Such part of each member's dues as may be determined by the Executive Committee shall be considered as payment of his subscription to the *American Journal of Public Health*.

The dues of associate members shall be collected through the local affiliated societies. Such associate members are not entitled to the *American Journal of Public Health*. The publications of the Association other than th *American Journal of Public Health*, to which the associate members are entitled, shall be determined from time to time by the Executive Committee.

ARTICLE 2.

Board of Directors.

The planning of the work of the Association, the management of the Association and its properties, the election of officers and committees, the apportionment of directors among the several affiliated societies, the establishment of rules setting forth conditions of membership in societies, the observance of which shall be necessary for affiliation, and all other matters relating to administration of the affairs of the Association, shall be vested in the Board of Directors, except as herein otherwise expressly provided.

The president of the Association shall be the presiding officer of the Board of Directors, and the secretary of the Association its secretary. The president, vice-presidents, secretary, and treasurer shall be ex-officio members of the Board. Ten directors shall constitute a quorum.

ARTICLE 3.

Executive Committee.

There shall be an Executive Committee consisting of nine members, of whom six must be directors at the time of election. The president, secretary, and treasurer shall be ex-officio members. The six elective members shall be chosen for a term of three years each, but all terms shall be so arranged that two members shall be elected at each Annual Meeting.

The executive work of the Association shall be performed by the Executive Committee; provided, that in the interim between meetings of the committee, the president, secretary, and treasurer shall perform the executive work generally perteaining to their offices. Four members of the Executive Committee shall constitute a quorum.

ARTICLE 4.

MEETINGS.

There shall be at least one stated annual meeting of the Association, held at a place to be fixed by the Board of Directors. The time of the meeting shall be determined by the Executive Committee. Other meetings of the Association may be called by the Board at such times as it deems proper.

ARTICLE 5.

AMENDMENTS.

These by-laws may be amended by the vote of not less than two-thirds of all the members of the Board of Directors present and voting at any session of the Annual Meeting, the call for which session specifying the particular section to be acted upon shall have been made not less than twenty-four hours prior to the session at which action is to be taken.

RESOLUTIONS

Adopted at the General Sessions, American Public Health Association, Chicago, Ill., Thursday afternoon, December 12, 1918:

Resolved, That it seems desirable that a Section on Child Hygiene, School Hygiene and Dental Hygiene be established so soon as it appears that a sufficient number of members interested in such work make known to the directors the same through their formal application for the same, in keeping with the By-Laws.

Resolved, That it will be to the interest of the public health and to officers of the American Public Health Association if all health associations take advantage of the "Four Minute" method of having health problems presented to the public through meetings called in their several communities for such purposes.

Inasmuch as by the cessation of the war certain army cantonments, ammunition villages and training camps will not be required for war activities or other government purposes, and as many of these would be adapted to public health purposes for the prevention and cure of certain diseases, notably tuberculosis.

Be it resolved, That a committee from the Association be appointed to wait upon the Government, the War Department and the United States Public Health Service to urge the desirability of selling or leasing such buildings to any state or municipal authority for health purposes on conditions approved by the Government, and if necessary that legislation be passed to bring about such a result.

WHEREAS, The War Department, with the coöperation of the United States Public Health Service, at the army camps and in sanitary zones immediately surrounding them, in providing an adequate pure water supply, a complete system of sewers and drains, thoroughly demonstrated the value of these primary health measures in protecting the health and increasing the efficiency of our military forces.

Therefore, be it Resolved, That the American Public Health Association express to the War Department and the United States Public Health Service, its recognition of the splendid work accomplished jointly by them, and

Be it further Resolved, That the attention of Federal, State and Municipal authorities, when considering the resumption of public works, be called to the importance of a pure and adequate water supply, a complete system of sewers and sewage disposal, and the removal of garbage and dry wastes, as a primary public health measure in the prevention of disease, safeguarding human life and increasing human efficiency of the civil population, with a consequent added prosperity, and that they take steps in those states and communities where they are coöperating with the health authorities to encourage and, where necessary, assist in the construction of such works.

Resolved, That letters of thanks be transmitted by the Secretary:

To the Health Commission of Chicago, and members of the Chicago Department of Health, Police and other departments, for their generous and untiring efforts to insure the success of this meeting of the American Public Health Association, and for the constant courtesies of their officers.

To the Chicago Association of Commerce for its generous financial aid in providing for the success of the meeting and the entertainment of its members.

To the President and members of the Chicago Medical Society, and through them to the profession of the city, for their interest in the work of the Association and the courtesies extended to its members.

To Swift & Company for their generous entertainment extended to the members of the Association.

And especially to the daily press for the many and varied courtesies extended to the association, but especially for the splendid reports of the various meetings for the benefit and education of the public, and

To Messrs. Carey, Orr and DeBeck of the *Tribune* and *Herald-Examiner* for cartoons.

That the thanks for the association be given to the exhibitors of scientific and sanitary apparatus for the interest they have shown in the interests of the association.

Resolved, That in future section meetings on Public Health Administration there be included papers and reports from Departments of Health, officials, and others affiliated with that organization, dealing with the preparation of their budgets, the showing and procedure necessary thereafter in that behalf, the attitude generally of the granting bodies as to providing sufficient funds therefor, the ratio between these funds and the condition of public health; the funds per capita provided within the jurisdiction of these departments and such other data and information pertaining to this subject as may be available.

Resolved, That an active program of education of state, county, and municipal legislative and executive officials be inaugurated and carried out.

Resolved, That this body recommend, and in every way use its influence to secure state legislation that will place a minimum of 50 cents per capita of population annually in the budget of the Health Department.

INFLUENZA DISCUSSIONS.

INFLUENZA was the dominant subject for consideration at the Chicago gathering as it very properly should be. On the first day of the meeting the Executive Committee named an Editorial Committee to prepare a working program with reference to the disease, the report of which is the Influenza Bulletin, published in Chicago within forty-eight hours of the close of the meeting. This has been the most helpful group of statements that has thus far been published. The public health administrators of the country owe a debt of gratitude to this committee and to the group of generous Chicago citizens who furnished the fund which made instant publication possible. The Influenza Bulletin bears the date of Friday, December 13, the day following the close of the meeting.*

Influenza and allied subjects constituted the main topics for discussion at four sessions, general and sectional. An abstract of the work at these sessions follows, together with some of the shorter communications on the subject. The regular Proceedings of the Association will be given in later issues of the JOURNAL.

TUESDAY MORNING JOINT SESSION OF LABORATORY AND PUBLIC HEALTH ADMINISTRATION SECTIONS.

The Laboratory joint session saw the presentation of two very important papers, those of Dr. W. H. Park and Dr. E. C. Rosenow. The former finds place in this issue of the JOURNAL, and an abstract of the latter.

In the discussion of Doctor Park's paper, Dr. E. C. Jordan of Chicago called attention to the age

*This Bulletin has been reprinted in the January issue of the JOURNAL.

group in this epidemic, more than 60 per cent of the mortality lying in the ages between twenty and forty against 8 or 9 per cent in the outbreak of inter-epidemic years. "This fact," said Doctor Jordan, "indicates a radical difference in the causal agent of this pandemic. . . . That being the case, where we find a similar picture in the true respiratory tract infections, it seems fair to suppose that neither Pfeiffer's bacillus, the pneumococcus, or varieties of streptococci are responsible for these outbreaks." Doctor Jordan commented further on the fact that different sections of the country had different bacterial findings. "My own feeling about the whole situation, and it is a surmise, is that we have in cases of pandemic influenza an infection with an unknown or generally unrecognized virus which increases the susceptibility of the individual normally to infection with the various pathogenic respiratory tract organisms, and that superimposed on this initial infection we have a variety of secondary infections."

Dr. J. W. Nuzum of Chicago spoke of the conditions in his city. Between September 23 and October 29, more than 2,000 patients were admitted to the Cook County Hospital, with a fatality of 31 per cent. Influenza bacillus was recovered in 8.7 per cent of the cultures, pneumococci of various types were the predominating organisms throughout the cultures, both from life and from autopsies. The scarcity of bacterial flora in the nose and throat, particularly at the beginning of the disease was striking. Dr. Nuzum noted that a vaccine had been prepared from the various types of pneumococcus and about half a million doses were distributed to points in the Far West, but no report could be made as yet on the efficacy of this work. In closing his discussion the speaker referred to the frequency of empyema in these cases, the predominating organism being the hemolytic streptococcus, a late invader, and questioned what should be the proper procedure in such cases.

Dr. William R. Stokes of Baltimore spoke of the findings in his city, namely, streptococcus, pneumococcus types 2 and 4 and the influenza bacillus in 10 per cent of the cases, both at autopsy and in the sputum.

Dr. Milton J. Rosenau of Boston outlined some of the early experiences in the East where the first demonstrations tended towards implicating the bacillus of Pfeiffer, which was recovered in 83 per cent of the cases examined. This impression has now been seriously undermined by observations in other parts of the country and by subsequent work in Boston. Dr. J. O. Cobb of Chicago noted that government sanatoria proved to be no sanctuaries, patients dying just as promptly there as elsewhere. His observations dealt with Fort Stanton, N. M.

Doctor Park closed the discussion, in which half a dozen other speakers took part.

In his paper entitled, "Prophylactic Inoculation in Pneumonia and Influenza, Preliminary Report," Dr. E. C. Rosenow waives the question of lack of identification of the causative organism in influenza, and goes at once to a discussion of the results obtained from vaccines from strains freshly isolated from the sputa and lungs in about the proportions in which they are found. Since in the progress of the epidemic there has been evidenced a decided change in the bacterial flora, new strains were added to keep pace with the changes in so far as possible.

Doctor Rosenow notes the presence in smears and cultures of what appears to be a distinctive streptococcus, Gram-positive and lanceolate, occurring singly at times, but more often in rather long chains. He describes the organism, notes that hemolytic streptococci were found next most frequently, and outlines the minor rôle of *Staphylococcus aureus* and the influenza bacillus. He gives the formula used in the preparation of the vaccine, the technique of manufacture and the dosage. He presents also in tabular form the incidence of illness and mortality of a large group of persons.

The conclusions reached by Doctor Rosenow are that, "by the use of a properly prepared vaccine it is possible to afford a definite degree of protection particularly for nervous individuals, including pregnant women, during an epidemic of influenza."

In discussing the paper Dr. George W. McCoy of Washington spoke especially of the difficulty of getting satisfactory data. He adduced some evidence opposing the views of Dr. Rosenow and concluded that reliance could not be placed on vaccines for protection. He advised, however, not to take too pessimistic an attitude and cited the difficulties before typhoid inoculation became successful.

Dr. Timothy Leary of Boston spoke of the autogenous vaccine developed at his laboratory. Although reports have been received that are distinctly favorable and data are gradually accumulating, they are not as yet in sufficient quantity to warrant final conclusions.

Dr. F. O. Tonney of Chicago spoke of the vaccine as used in his city, but noted that the general returns from physicians are unsatisfactory for evidence because they can be compared only with general case rates and mortality rates at large in the city. He offered "for whatever they may be worth" some favorable figures, but said that they were incomplete.

Dr. J. J. Moore of Chicago varied the discussion by asking what might be known of prophylactic immunization against the streptococcic group. Dr. W. O. Sherman of Pittsburgh, spoke of the

psychic benefit of prophylaxis, and stated that taking the benefit of the doubt and the possibility of the hopeful mental attitude that would result, he had vaccinated 150,000 to 200,000 employees in munition plants, mines, steel establishments, together with members of their families. He agreed with Doctor Rosenau that it is still too early to analyze the internal situation but stated some favorable results agreeing with other speakers on the difficulty of the problem.

Admiral E. R. Stitt of Washington spoke briefly on the incidence at Paris Island and Quantico and their relationships, while Col. V. C. Vaughan gave especial attention to the pneumonia phase of the problem in what proved to be almost a paper by itself. The JOURNAL hopes to print this in a later issue.

Dr. Woods Hutchinson of New York City, speaking as an "innocent bystander and not a scientific expert," expressed the opinion that Doctor Leary was "far too modest" in his claims for his own good. He noted a fact with reference to reports from institutions in Massachusetts, that these people were largely deficients and it is not fair to use them in comparisons.

Dr. B. Franklin Royer of Harrisburg, Pa., spoke of the necessity of accurate statistics and controls and other speakers touched on different points of this very complicated matter.

In closing the discussion, Doctor Rosenow pointed out deficiencies in the bacteriological study of the sputum and emphasized the fact of the necessity for action, even with the data not fully determined instead of "watchful waiting" under such circumstances as the existing epidemic. He called attention to the changing phases of the disease and asked for coöperation of every one towards the study of the cause of the disease.

TUESDAY EVENING GENERAL SESSION.

The general session of Tuesday evening, December 10, had for its topic, "Organization of Forces against Influenza." There were two regular papers, that of Dr. M. Nicoll, Jr., of Albany, N. Y., who spoke in place of Dr. Hermann M. Biggs, and the joint one of Col. Charles Lynch and Lieut.-Col. James G. Cumming, of Newport News, Va., on "The Rôle of the Hand in the Distribution of Influenza," both of which are presented in this issue of the JOURNAL. Doctor Nicoll's paper was an epitome of what is known about the disease. Dr. W. C. Woodward of Boston noted seven measures of protection adopted in his city: reporting, use of masks, vaccines, hospitalization, restaurant regulations, restriction of crowding, and education of the people. Dr. W. O. Sherman of Pittsburgh spoke of the work at the Lord of Guy's Hospital, London, where 1,000 New Zealand soldiers were inoculated in an effort to immunize them against infections of the upper respiratory tract. A mixed vaccine similar to that of Rosenow was employed. The results were that among vaccinated troops 2 per 1,000 developed influenza, while among unvaccinated controls the rate was 28. He thinks there is sufficient evidence to believe that there is virtue in vaccines in reducing the severity of the disease.

Dr. John Dill Robertson of Chicago outlined the policy of his city as including the closing of many places of amusement so as to give the people more sleep. He believes in sleep as "the greatest regenerating agent known to mankind." The better class of theaters were not closed because the ventilation was good and such places were used for centers for public education regarding the disease. Dr. H. O. Jones of Chicago followed Doctor Robertson, his topic being the policy in Chicago of keeping open the schools. His discussion finds place in the January issue of the JOURNAL.

Dr. Royal S. Copeland of New York City spoke of the care with which children in the public schools were watched and how those with any symptoms of the influenza were separated from the others till they could be examined by the nurse or doctor, and if infected, they were sent home with follow-up by the health department. This measure is believed to have been effective in preventing the spread of the disease. Motion picture shows were closed but the first-class theaters were kept open and used for centers for the health education of the people.

Dr. A. J. McLaughlin's paper on the "Organization of Federal, State and Local Health Forces" followed; it is presented in this issue of the JOURNAL. In the discussion Dr. Louis I. Harris argued that the 300,000 deaths from influenza showed the need for just such reorganization as was emphasized by Doctor McLaughlin, while Dr. A. Augustus O'Neill of Chicago corroborated the opinions of Doctor Jones as to the importance of keeping open the schools.

"The Work of the Illinois Influenza Commission," for which see the January issue of the JOURNAL, was presented as the last paper of the session by Dr. C. St. Clair Drake of Springfield, Ill., in the discussion of which Dr. Owen J. Mink of the Great Lakes Training Station, Ill., outlined the incidence and mortality of influenza in the military camps. These followed typical curves. There was an explosive onset for about five days and in two weeks the epidemic had had its run. Experience with the mask was not encouraging. Two types of the disease developed at the Station, one the regular winter form and the other a severe type accompanied with pneumonia. Dr. J. O. Cobb urged the American Public Health Association to use its influence to-

wards larger appropriations, so that more vigorous measures could be adopted for the prevention of the spread of the influenza.

Wednesday Evening General Session with Chicago Medical Society.

At the joint meeting with the Chicago Medical Society on Wednesday evening, December 11, at its home, 25 East Washington Street, the various treatments received attention. Lieut. Frank W. Hartman, M. C., U. S. N., spoke formally with reference to treatment of influenzal patients with plasma of convalescent patients. The text of this article appears in the Journal of the American Medical Association for January 4. It outlines the condition in Washington where the U. S. Navy has treated not only the officers and their families and the enlisted personnel, but also civilian employees. Up to December 8, 525 cases of influenza were treated at the Naval Hospital, 27.5 per cent coming in with pneumonia or developing it within the hospital. Two factors are believed to have aided materially in keeping the mortality low during the first few days, digitalis and venesection. Isotonic glucose and sodium bicarbonate intravenously used and massive doses of camphorated oil were each given in a series of cases without beneficial results. Pfeiffer's bacillus was grown repeatedly from sputum, lung puncture and autopsy material, but never from the blood stream.

At the height of the epidemic the suggestion came from the Chelsea Hospital at Boston (U. S. N.) with reference to the value of serum from convalescent patients.* Doctor Hartman outlined current methods of administration, described the reactions, noting that with three quarters of the patients there was a response of some kind within a couple of hours, varied in its nature, consequent to which was a slower pulse, freer and easier respiration and a reduced, if not a normal, temperature. Pneumonias which developed and were treated within forty-eight hours, showed clear-cut and striking results. The conclusions include a belief in the beneficial effects of the administration of the plasma, the need and advantages of care in the treatment, the necessity for diagnosing pneumonia at a very early stage and the reduction of the mortality from 25.2 per cent to 6.5 per cent.

In the discussion following Doctor Hartman's paper Doctor Pietrowicz of Chicago spoke with reference to the value of the outdoor treatment of pneumonia and influenza, and expressed the opinion that there is a new era coming in the treatment of respiratory diseases. Dr. A. A. Goldsmith of the same city felt that in the different treatments of disease, for which physicians have varied methods there is much the same result. He personally believes in fresh air, quiet and sleep. Some cases are doomed from the start, and no treatment, save possibly serum, can be of any value.

Dr. H. N. Bundesen of Chicago expressed the opinion that the serum treatment of pneumonia and influenza is of great value, just as similar procedures have been of value in scarlet fever and diphtheria. He spoke briefly on the technique, and advocated large doses, 200 cc., of convalescent serum given slowly during half to three quarters of an hour. If there was not a quick drop in the temperature, another 200 cc. could be injected.

Dr. B. S. Maloy of Chicago reported that he had treated 225 cases of pneumonia in the recent epidemic and had lost no case. His assumption was in general that there would be pneumonia complications and he did not wait for the development of the symptoms before acting. On the first visit he gave tincture of aconite and tincture of veratrum viride together. This should be continued in half-teaspoonful doses every half-hour until six to ten doses have been administered. At the same time give the patient 2 or 2½ grains of calomel in one-fourth grain doses, crushing the tablets and mixing with water, and, six or eight hours after the last tablet has been given, administer one or two heaping tablespoonfuls of epsom salts. His experience suggested that this treatment had aborted pneumonia in many instances. Other details of treatment followed. Dr. John Dill Robertson of Chicago endorsed such treatment. He characterized it as of the older-fashion, which is employed by many physicians in the present epidemic.

Doctor Maloy's technique was further endorsed by Dr. James S. Boyers of Decatur, Ind., who called attention to the desirability of making the stomach alkaline. Lieut. L. R. Melnikoff of the Great Lakes Station questioned some of the remarkable results achieved outside Army and Navy camps and believed that they were really not complicated with pneumonia or were straight colds. He found that the pneumonia cases fared better in hospital units than in tents. Of 3,000 cases at the base hospital, 20 to 30 per cent developed pneumonia and of these about 20 per cent resulted fatally.

In conclusion, Dr. A. C. Tonney of Chicago reported on a modification of the vaccine treatment as a preventive measure which had been checked by laboratory tests. The method pursued was to furnish an excess of nucleinic acid in the region where the vaccine was introduced. The tissues must be thoroughly massaged after hypodermics are given.

* Maguire and Redden, Jour. A. M. A., Oct. 19, 1918. A. J. P. H., Oct. 1918, p. 741.

Thursday Morning Special Influenza Conference.

At the Influenza conference of Thursday morning, December 12, Dr. H. W. Hill, of St. Paul, Minn., was chairman, and Dr. William A. Evans, of Chicago, stated that the committees which had been appointed would present reports and have them freely and informally discussed.

Dr. William C. Woodward of Boston presented the report of the Committee on Administration for Relief during the Influenza Epidemic, stating at the outset that the committee was charged with the formulation of certain principles for the guidance of health and administrative officers. Some of these, he said, would be applicable to relief measures with any other epidemic. Doctor Woodward then read the report of the committee which, with reports of other committees, has already been presented in the January issue of the Journal.

Mr. Frederick L. Hoffman of Newark, N. J., presented the report of his committee on History and Statistics of the Epidemic.

Dr. J. W. Inches of Detroit discussed the wearing of masks by the laity on the streets, and closing. Detroit was closed for sixteen days and then opened again. He compared Detroit with Buffalo, both lake cities, with much the same conditions. His experience after closing seemed to be that when everything was wide open the number of cases was less.

Dr. W. L. Holt of Beloit, Wis., protested against the wholesale condemnation of the gauze mask. He considered that if used in the proper way, it would be a protection, especially in families. The mask should be made of six or eight layers of gauze and would prevent droplet infection; scientific experiments had shown that the pneumococcus does not go through six or eight layers of gauze.

Dr. James A. Hayne, Columbia, S. C., believed that the closing of theaters, shows, schools and churches lessened the death-rate. If people assembled in large crowds, there would certainly be a greater conveyance of droplet infection than if they did not. He showed the need of local option in this particular, and said it was no easy proposition to formulate rules and regulations for the different rural communities. He expressed himself as approving of closing in times of epidemic.

Dr. Roy K. Flanagan of Richmond, Va., noted that in Richmond the schools were closed. Richmond compared favorably with other cities in regard to death-rate. In fact, it was lower than in most cities on the Atlantic seaboard.

Dr. E. B. Oliver of Fort William, Ont., stated that he had favored the keeping open of public places, but the authorities thought otherwise and kept them closed. Then the public crowded into the five-and-ten-cent and other stores, which resulted in a large increase in number of cases. Such problems must be settled by each community for itself.

Dr. Charles V. Craster of Newark, N. J., spoke in favor of the mask because its value had been shown in many instances. It was advisable to stop persons from crowding together. Droplet infection would be minimized by keeping people apart as far as possible. He advocated rational closing measures.

Dr. J. O. Cobb of the U. S. Public Health Service, Chicago, supported the position of Doctor Hayne with reference to sparsely settled communities, but cities like New York, Chicago, Detroit and St. Louis must have other methods of dealing with the public. The problem must be looked at purely from what one can do and not what might be ideal. He believed that the spread of influenza can be controlled by a properly made mask, properly worn. He believed the schools should be kept open in all large municipalities, and business go on as usual.

Doctor Thomas E. Maloney of Fall River, Mass., gave a humorous turn to the meeting and suggested for a solution of the whole problem a diver's suit and a pair of handcuffs.

Dr. Elias Pratt of Torrington, Conn., questioned whether the disease was transmitted by crowding. "Does crowding help to transmit the disease?" he queried. "On the decision of this point must rest the action that health officers should properly take." He spoke in favor of vaccines, through his experience in local factories.

Dr. W. E. Moore of Sioux Falls, S. D., stated that his town had a population of 30,000. When the epidemic started they closed up everything for seven weeks. Then they opened up wide and had an explosion. He advised the use of masks for nurses and others brought into immediate contact with those suffering from influenza.

Dr. E. H. Willard of St. Joseph, Mo., noted that they had been closing picture shows and other places with a view to preventing spread of the disease and yet the disease kept on spreading. He hoped the Association would adopt a definite program for limiting the spread of the disease and for treating it.

Doctor Stokes of Baltimore spoke in favor of the mask, which he said should be made of three or four layers of butter-cloth.

Doctor William H. Park of New York City presented the report of the Committee on the Use of Biological Products.

Dr. J. L. Folkston of South Dakota spoke of his experiences in a town of 7,000 inhabitants, where he used the Rosenow vaccine from the Mayo Foundation, and had lost only one patient.

Dr. William W. McDonald of Jacksonville, Fla., said that at first the cases were mild. He figured out that about one third of the population of Jack-

sonville were susceptible to influenza. He had definite record of 17,000 cases but considered this only one half of the true number. In October they lost 450 from the complication of influenza. Everything was closed at the end of the first week and kept closed until the epidemic was over. The population of Jacksonville is approximately 120,000.

Dr. H. Delamater of St. Joseph, Mo., noted that the appearance of influenza in his city was on September 15. He assumed that it was caused by contact, from his experiences with the previous outbreak, and he isolated cases from the start. With reference to the mask, he said one could not expect the members of a family to wear one for six weeks without washing.

Maj. H. C. Clark of Rock Island Arsenal said that it was not definitely known whether the disease is air-borne or not. Its course in the Army camps was a rapid increase the first week, a boom during the second week, and it declined so rapidly then that it was practically over. He believed the evidence to show that it is a contact disease. He doubts the efficacy of closing the schools. At Rock Island they advised the people to go to bed and the people who did so at once had very light attacks. He believed in avoiding crowds, but not in "wildfire" closing down.

Colonel Cumming of Newport News spoke in favor of the mask and said that it acted as a barrier between the hand and mouth, rather than between the mouth and outside air. He differentiated between crowds and said that crowds for the purpose of commercial exchange or theater parties did not show a marked incidence, but when people gathered together in large crowds for the purpose of eating there was an explosive outbreak.

Dr. Frederick Montizambert of Montreal, Can., upheld the mask for nurses and others who come in direct contact with the sick. The dry mask will stop droplet infection, but when moist from the mouth, the droplets will dry and be sucked into the mouth so that protection is not afforded. Masks should be frequently changed. He spoke especially of the possibility of infection through the conjunctiva, and said that it might be important to protect them.

Dr. A. W. Carnes of Dallas, Tex., expressed himself as opposed to the closing of public schools, churches, and so on. He stated that child life is not the age most susceptible to influenza, but the age of those working in department stores, and office buildings. He argued that if the schools and churches were closed, then all five-and-ten-cent stores and all business activities should be closed. Restaurants were a cause of contagion, and on the principle of closing these should be closed also.

Dr. Milbank Johnson, Los Angeles, Cal., spoke of handshaking and suggested that Americans could profit by the custom of the Chinese, who shake their own hands as a greeting and not those of others.

OTHER INFLUENZA PAPERS.

A number of papers were presented at different times before different sections which had reference to the influenza, and abstracts of some of these are here placed in order that this material may be brought together.

Types of Organisms Found in the Influenza Epidemic in Baltimore.

Mary Shedwick Bailey, M. D.

Health Department, Baltimore.

In the study of 47 cases of influenza by Doctors Simon, Maldeis and myself, the following organisms were cultivated from the sputum: A nonhemolytic streptococcus was found in 11 cases, a hemolytic streptococcus in 6 cases, the *Staphylococcus aureus* in 9 cases, the pneumococcus type IV in 6 cases, the pneumococcus type II in 9 cases, the penumococcus subtype II in 2 cases, the pneumococcus type not determined in 10 cases and influenza-like bacilli in 6 cases. These influenza-like bacilli were not carried any further than the pure colonies on blood agar plates but resembled the influenza bacillus morphologically when colonies were picked from such plates. At times two or more different types of organisms were found in the same sputum.

The smears of the 28 cases which I examined gave the following results:

Streptococci were found in 24 sputums, staphylococci in 1, pneumococci in 15, and 8 showed the presence of fine, Gram-negative, influenza-like bacilli. Streptococci were observed alone in 6 and pneumococci alone in 4 cases. Streptococci mixed with pneumococci and Gram-negative bacilli were found in 6, mixed with pneumococci in 9, with staphylococci in 1, and with Gram-negative bacilli in 2 cases.

Agency of Hotels in the Spread of Influenza.

Effie L. Lobdell, M.D.

Chicago.

In listening to the papers and discussions relative to the survey and means of control of influenza in a community, I am impressed by the persistent absence of any mention of hotels as important. Churches, theaters and schools, and the occasional gathering places of people are mentioned and measures of control adopted. Hospitals which, because of their normal condition of sanitation and training of their personnel are the least liable to spread contagion, are still further so affected by the extreme rules of quarantine that the work of the surgeon and physician is seriously interfered with.

Yet, what I believe is a most potent factor in the distribution of infection in this present epidemic is hotels. I live in one, and I personally know that on each floor for the past few weeks several rooms have one or more guests ill with influenza, and no special precautions have been taken by the management to protect other guests or the employees.

One or two a day have been removed to hospitals during a late stage of the disease and some days one or two a day have died. One day last week by 8 p. m. all rooms were taken and waiting transients were checking their baggage awaiting their turn for a room. The first room to be had was made vacant by the removal of a patient.

The maids have been ill of influenza in groups of three or four, lessening the required number for normal times.

The rooms are dry-cleaned by sweeping, dusting, etc., carrying the dust rags from one room to another, except once or twice a week, when floors, baseboards, etc., are washed and pneumatic cleaners used.

The traveling public is careless in habits and untidy. A disease carrier, often ill, is changed from one hotel to another or from one room to another without restraint. Frequently, on account of expense, a physician is not called or one from outside is sent for, who will not inform the management or be interested in anything in the house.

Let me suggest that a definite plan be evolved to cover conditions of hotels, rooming houses, boarding houses and other places where residents are transient, and that this plan should compel reporting and registration of casual illness occurring in its premises:

1st. To the main office of the institution or hotel and by it to the Health Department.

2d. That suitable sign be placed on the door of room or apartment occupied to indicate illness.

3d. That a physician representing the management ascertain the nature of illness, and such other facts as will protect residents and employees and render proper care to the patient.

4th. That instructions be formulated, printed and posted in rooms, compelling necessary cleanliness in habits of guests and occupants of rooms.

5th. That employees who work in these hotels or institutions be reasonably instructed and protected by the management and be examined by a physician when ill, and not allowed to resume work until again examined.

6th. That disinfection be compulsory as a precaution when a contagious or infectious case has been known to exist in a room or apartment of a resident or guest before another occupant is permitted to register.

7th. That this matter be taken up with the Hotel Association at an early date and coöperation requested.

RESOLUTIONS ON THE STATISTICAL STUDY OF THE INFLUENZA EPIDEMIC OF 1918.*

Introductory Remarks.

We have just passed the first phase of an epidemic of influenza-like disease. This epidemic calls for the application of the most effective methods of research in medicine, and especially in preventive medicine. The special committee on the statistical study of this epidemic, appointed November 20, 1918, to prepare a preliminary report to this Section, wishes to present a résumé of its examination of the prevailing statistical situation as follows:

There are two methods of research inquiry available to the American public health movement in the study of this epidemic: (a) the *intensive* method of observation of single cases of the disease and the collection of fact and opinion arising out of such observations; (b) the *extensive* method of inquiry, or the statistical method, based upon the observation of large numbers of cases and upon the application of the criteria and modes of study peculiar to the statistical method. The laboratory and public health administration sections of this Association may be expected to provide opinions on the best modes of research through intensive inquiry, in association with members of of the medical profession engaged in the practical case management of the disease. The application of statistics and its methods to the study of the epidemic is, however, almost entirely within the province of the Vital Statistics Section. This Sec-

* Being Resolutions and Discussion before the Section on Vital Statistics, December 11, 1918, at Chicago, Ill., together with Notes of Subsequent Committee Work.

tion could contribute to the study of the epidemic through the extensive or statistical method perhaps by following out the program suggested below:

Carefully consider the possible sources of data and draw up a schedule of *registration and tabular requirements*. This would involve consultation with practical registrars in the several states and cities and in the Federal government, assigning work of various kinds to each of these groups in order to avoid duplication. It would also involve coöperation with the Army, Navy, Public Health Service and laboratory groups in order to consider what vital data there are available other than mortality statistics, which, reduced to uniform tabular form, could be used in determining the broader aspects of the epidemic in the United States.

Pathometric study of the epidemic in order to determine its law in the several states and cities,—especially the law which would best describe its course through these populations with respect to the first, second, and third phases; the higher analytic study of the characteristics of these curves in order to determine the true "excess mortality," etc. By means of such higher analytic study, numerous contributions to medical knowledge with respect to this epidemic may be developed. It should be possible to relate study of the epidemic to other contributions in epidemiology by students who have made use of mathematical methods in the study of the disease.

This, briefly, is a statement of the important work which lies before us with respect to the broader facts of this epidemic. The epidemic has given us an opportunity to show what statistics, especially vital statistics, and its methods can do for preventive medicine. The example we shall set in the study of the data of the influenza epidemic will no doubt be a point of departure for studies of other data in the medical sciences.

It will not be possible for any single member of our Section to say just how this desirable end shall be achieved. I would suggest, therefore, that this Section appoint a committee and, by continuing the special emergency committee, to consider ways and means of presenting the extensive facts of the epidemic and embodying in the work of the committee the following principles:

That the Committee shall be composed of representatives of the United States Bureau of the Census, of the United States Army and Navy, of the United States Public Health Service, of representatives of the state and municipal health boards, laboratory and clinical societies and of the various statistical, sociological, actuarial and economic associations. The advisory work of the Committee shall be to outline first, the various sources of data, the minimum standards of tabular and registration practice to be observed by the several organizations providing data, with a view to preventing any overlapping, and second, to bring in recommendations for the pathometric study of the data and publication of these results. The preliminary report of the special committee, emergently appointed to bring this subject to your attention, should be considered in furthering the above ends, and the Committee continued so far as possible in accordance with the suggestions as to representation advanced in this report.

Respectfully submitted,

EDWIN W. KOPF,

Chairman of the Special Emergency Committee on Statistical Study of the Influenza Epidemic, meeting at the University of Pennsylvania, Philadelphia, Pa., November 29–30, 1918.

Resolutions

Adopted by the Section on Vital Statistics, December 11, 1918.

Your special committee on the statistical study of the epidemic begs leave to offer the following resolutions:

Whereas: The conclusions of preventive medicine are based both upon the intensive study of cases of health and disease, *and* upon the extensive survey of health and disease in masses of the population, and

Whereas: The function of vital statistics is to provide this latter extensive survey of the recent epidemic of "Influenza" among the masses of the American population, especially with a view to the discovery of truths in preventive medicine, not now known, but applicable to the development of positive knowledge of this disease in its broadest aspects, therefore be it

Resolved: That the Section on Vital Statistics continue the special committee on statistical study of the epidemic and to give it the power to appoint to membership of this committee proper representation of the following groups interested in the discovery of the essential epidemiological truths of the disease:

Representatives of the Public Health Service of the United States.

Representatives of the Medical Department of the United States Army and Navy.

Representatives of the United States Bureau of the Census, especially the divisions of Vital Statistics, Population and Geography.

Representatives of the State and Municipal Commissions and Boards of Health now studying the epidemic.

Representatives of actuarial, statistical, economic and sociologic societies.

Representatives of infant mortality, obstetrical and other special societies in medicine.

Abstract of the Discussions of the Sub-Committees, Vital Statistics Section.

In accordance with the foregoing authorization by the Section on Vital Statistics, and with a view to coöperation with the Sub-committee on "History and Statistics of the Epidemic," of the Association's general reference committee on the 1918 epidemic of influenza* the special committee on statistical study of the influenza epidemic was reorganized as follows:

Sub-committee A: Registration and Tabulation Practice of the Federal Departments. Wm. H. Davis, M. D., Chief Statistician, Division of Vital Statistics, Bureau of the Census, Chairman; Richard C. Lappin, Recorder.

Sub-committee B: Registration and Tabulation Practice of the State Departments and Commissions. Otto R. Eichel, M. D., Director, Division of Vital Statistics, New York State Department of Health, Albany, Chairman; Edwin W. Kopf, Recorder.

Sub-committee C: Registration and Tabulation Practice of Municipal Boards of Health and of Private Public Health Agencies, Charles V. Chapin, M. D., Superintendent of Health, Providence, R. I., Chairman.

Sub-committee D: Pathometry (mathematical analysis and interpretation) of the Epidemic. Charles C. Grove, Ph. D., Columbia University, Chairman; Arne Fisher, F. S. S., Recorder.

Sub-committee A met in Washington, D. C., on December 23, 1918, and adopted the following resolutions relative to its functions:

Functions of the Committee.

1. *Resolved*, that the function of the Special Committee, of the Section on Vital Statistics of the American Public Health Association, on the Statistical Study of the Influenza Epidemic is purely an advisory one and that any definite program of study of mortality statistics, morbidity statistics, Army and Navy statistics, and the statistics of hospitals and private organizations shall be issued by the official bodies representing these subjects.

Statistics of Population.

2. *Resolved*, that the Committee shall use only estimates of population officially issued by the Bureau of the Census in studying mortality and other statistics of the influenza epidemic.

The Committee made proper provision, for use of estimates.

3. *Resolved*, that the sense of this Conference is that interstate comparisons of data are desirable and they should be presented according to the judg-

*"Influenza Bulletin, A Working Program." A. P. H. A.; Boston, December 13, 1918, p. 15.

ment of the Chief Statistician for Vital Statistics, Bureau of the Census.

4. *Resolved*, that the desirable thing to do, if it can be done, is to get accurate censuses, and if this cannot be done to use random sampling and that in the latter instance Major Davenport be delegated to choose the best method of random sampling, and

5. *Resolved*, further, that the Census Bureau be requested to endeavor to secure from the data in the office in the Adjutant-General of the Army and in the Bureau of Navigation of the Navy, the distribution of the ages in the Army and Navy, by months, for the period from July 1, 1917, to December 31, 1918, but in the event that such data cannot be obtained the method of random sampling be adopted.

6. *Resolved*, that wherever causes of death are shown of registrations of influenza (International Title 10) and pneumonia, all forms (International Titles 91 and 92) as primary causes, the Manual of International List of Causes of Death and the Index of Joint Causes of Death shall be employed in making such classifications.

Infant Mortality.

In the discussions of the effects of the epidemic on infant mortality, the following resolution was introduced and adopted:

7. *Resolved*, that the Committee realizes the urgency of studying infant mortality during the epidemic period, in order to ascertain what part of this mortality was probably due to (a) neglect contingent upon the morbific influences arising out of the epidemic and (b) influenzal illness of the mother.

8. *Resolved*, that inquiry be made by lying-in hospitals, visiting nurse associations and maternity centers to determine the morbidity and mortality among pregnant women, and products of pregnancy during the period September to December, 1918.

Norms of Mortality.

9. *Resolved*, that for states and cities where data are available a norm of (a) infant, and (b) adult mortality by age groups for influenza and pneumonia combined, and for all causes of death combined, be constructed for the months of the epidemic (September, October, and November, 1918), and at least that these norms be based, if possible, upon the experience of the five preceding years.

At the afternoon session the discussions were again taken up, and the following resolutions adopted:

10. *Resolved*, that, in view of the known lack of uniformity, official morbidity reports do not offer a reliable basis for comparisons of case-incidence in different areas, but no doubt they furnish an index (a) of relative chronology and in some instances of sex and age distribution, and (b) of morbidity for military and naval populations which are more directly under control.

11. *Resolved*, that unless there is satisfactory evidence that all laboratory conditions have been properly controlled, it is unwise to draw any conclusions from apparent variations in bacterial flora at various stages in the epidemic or in different localities.

12. *Resolved*, that it is desirable, for a number of representative cantonments or other military establishments to supply information as to sickness, by five-year age periods, by date of onset, by duration of illness in days, by principal complications, including such sequelæ as tuberculosis, and fatality or lethal rates per 100 completed cases.

13. *Resolved*, that it is desirable to secure information from the several states and cities on specific measures employed to control the epidemic, and the dates such measures were instituted and terminated.

The Committee came to the conclusion that it was too early to consider mathematical analysis.

14. *Resolved*, that the Committee wishes to direct attention to the possibility of studying army data relative to influenza according to types of housing.

15. *Resolved*, that it is desirable that the Federal Government bureaus (Army, Navy, United States Public Health Service, and the Bureau of the Census) undertaking investigations in connection with the influenza epidemic, prepare a general statement of their program.

Sub-committee B met on January 8, 1919, in New York City, and adopted resolutions regarding the special economic, sociological, and other strictly local aspects of the epidemic statistics.

The Committee endorsed Resolution No. 2 of Sub-committee A and favored the isolation of statistics of mortality among men in military establishments from the civilian population in State reports, and the classification of the statistics of death to be in harmony with Resolution No. 6 of Sub-committee A. The Committee further approved of the preparation in certain states and cities of statistical cards according to authorized standards for the determination of norms of infant and adult mortality, according to causes of death by weeks during the autumn and winter. Further, it suggested the differentiation in tables of the two types of influenza.

Coördination of the work of the several Sub-committees will be carried on through the General Chairman of the Committee on Statistical Study of the Epidemic, Mr. Edwin W. Kopf, 1 Madison Avenue, New York City.

ASSOCIATION NEWS

HELP WANTED.

In order to relieve the shortage of sanitarians, help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Physician for health department of southern city to have charge of department. Salary, $2,500 to $3,000 per annum. Address W. D. H., No. 188, care of this JOURNAL.

Bacteriologist in a Massachusetts municipal health department laboratory, with at least one year's experience in public health laboratory work. Male physician preferred. Salary, $1,500. Address D. H. B., No. 190, care of this JOURNAL.

Man or woman, preferred ages 21 to 35, for physiological chemist in New York State Department of Health. Requirements: knowledge of organic and physiological chemistry, with three years' experience. Salary, $2,600 to $3,000. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Laboratory assistant and bacteriologist, New York State Department of Health, man or woman. Collegiate education required to include courses in bacteriology. Salary, $720. Written examinations in technical procedures and standard methods, with consideration given for education and experience. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Clerk, stenographer or secretary, Division of Laboratory Research, New York State Department of Health. Requirements: collegiate education, knowledge of bacteriological terminology, elementary bookkeeping, accounting, filing, stenography, and typewriting with reading knowledge of French and German. Salary, $901 to $1,500. Written examination. Apply for form before February 17 to Civil Service Commission, Albany, N. Y.

Pathologist and teacher of bacteriology in North Dakota University. Salary $2,500. Address F. E. H., No. 183, care of this JOURNAL.

NEW MEMBERS.

The following great showing of New Members is one of the results of the Chicago Meeting:

Elected to Membership in the American Public Health Association during December and January:

Wilfred H. Kellogg, M.D., Cal. State Health Bd., Sacramento, Cal.
Roxana H. Vivian, Ph.D., Wellesley College, Wellesley, Mass.
William B. Dougherty, Chicago, Ill.
Joseph S. Cohn, M.D., Chicago, Ill.
William C. Crapple, M.D., Chicago, Ill.
Harry G. Bryer, M.D., Chicago, Ill.
Byron B. Black, Sc.B., M.D., Chicago, Ill.
V. A. Bergeron, M.D., Chicago, Ill.
Julius Berinstein, M.D., Chicago, Ill.
J. Frank Armstrong, B.S., M.D., Chicago, Ill.
Paul H. Wezeman, M.D., Chicago, Ill.
David Nicholas Schaffer, M.D., Chicago, Ill.
Samuel Ochs, M.D., Chicago, Ill.
(Miss) Cornelia Allen, R.N., Chicago, Ill.
Helen B. Flynn, M.D., Chicago, Ill.
Stephen A. Cambowen, M.D., Chicago, Ill.
Eugenia E. Speevak, M.D., Chicago, Ill.
Bella Fox, M.D., Chicago, Ill.
M. M. Smith, M.D., Dallas, Texas.
Eric J. Dauek, M.D., Chicago, Ill.
Frederick M. Doyle, M.D., Chicago, Ill.
Alfred L. Fein, M.D., Chicago, Ill.
Robert Ludwick Furby, M.D., Chicago, Ill.
Harry H. Freilich, M.D., Chicago, Ill.
George William Gindele, M.D., Chicago, Ill.
Philip M. Gray, M.D., Chicago, Ill.
Samuel Harris Ganser, M.D., Chicago, Ill.
Benjamin Goldberg, M.D., Chicago, Ill.
Allan Joseph Heuby, M.D., Chicago, Ill.
Isabel M. Davenport, M.D., Chicago, Ill.
Charles J. Happel, Chicago, Ill.
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Alexander S. Hershfield, M.D., Chicago, Ill.
Arthur Hurwich, M.D., Chicago, Ill.
C. F. Isaacs, M.D., Chicago, Ill.
Virginia M. Johnson, M.D., Chicago, Ill.
L. A. Juhnke, M.D., Chicago, Ill.
Henry Klein, M.D., Chicago, Ill.
Estell D. Leonard, Chicago, Ill.
Almena P. McDonald, Chicago, Ill.
Israel Litten Sherry, S.B., M.D., Chicago, Ill.
Leon Sochat, M.D., Chicago, Ill.
Grace S. Wightman, M.D., Chicago, Ill.
Charles Carroll Thomas, M.D., Chicago, Ill.
Anton Philip Freund, Ph.G., M.D., C.M., Chicago, Ill.

E. E. Simpson, M.D., Englewood Hospital, Chicago, Ill.
E. W. Stenn, M.D., Chicago, Ill.
Felix H. Renberg, M.D., Chicago, Ill.
Gidore S. Polishuck, M.D., Chicago, Ill.
Stanley, Reuben Perkins, M.D., Chicago, Ill.
Abraham M. Oberman, M.D., Chicago, Ill.
Lillian Estelle Nicholas, Base Hospital, Camp Sheridan, Montgomery, Ala.
Fred Rudwick, Ph.G., M.D., Chicago, Ill.
Amzi Bedell Shoemaker, M.D., North Attleboro, Mass.
Anna Sokoloff, M.D., Chicago, Ill.
Estus H. Magoon, B.S., Muscle Shoals, Alabama.
William H. Daley, M.D., Chicago, Ill.
Noreen M. Sullivan, M.D., Chicago, Ill.
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Melville Day Dickinson, M.D., Troy, N. Y., Health Officer.
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James E. Mead, M.D., Detroit, Mich.
Orville Henry Brown, Phoenix, Ariz. A.B., M.D.
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W. S. Foster, Roanoke, Va.
R. S. Wiet, M.D., Beaumont, Texas.
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Edward C. Rosenow, Bact., Rochester, Minn.
Louis Edward Broughton, M.D., Andalusia, Ala.
Eugene Hastings Bullock, M.D., Kansas City, Mo.
J. B. Freund, M.D., Butte, Montana.
Miss Sally L. Jean, N. Y. C.
Miss Tracy Copp, A.M., M.D., Milwaukee, Wis.
Royal S. Copeland, A.M., M.D., New York City.
Thomas D. Lee, M.D., Camden, N. J.
A. M. Call, M.D., Ruby, N. D.
Herbert L. Davis, M.D., Cleveland, Ohio.
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Harry H. Griggs, Mgr. Industrial Relations Dept., Chicago, Ill.
Leo Gradman, Chicago Lab. Chicago, Ill.
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Oscar W. Ferguson, M.D., Mattoon, Ill.
Ella Camp, Brookfield, Ill.
J. C. Corbus, Mendota, Ill.
Chicago, Laboratory, Chicago, Ill.
Edmund W. Weis, M.D., Health Commissioner, Lasalle, Ill.
A. Wilberforse Williams, M.D., Chicago, Ill.
Max Thorex, M.D., Chicago, Ill.
Charles E. Stanbury, Chicago, Ill.
J. M. O'Malley, Ohio, Ill.
Henry G. Ohle, Ph.D., M.D., Chicago, Ill.
Edward E. Moon, M.D., Wilmette, Ill.
Joseph Henry Radford, M.D., M.O.B., Calb, Ont.
Maximilian Kern, M.D., Chicago, Ill.
City of Blue Island, Blue Island, Ill.
Edward T. Jachoff, M.D., Chicago, Ill.
H. B. Fitz Jerrell, M.D., Geneseo, Ill.
Charles E. Harrison, M.D., Fulton, Ill.
Cicero D. Hill, Chicago, Ill.
George J. Kuebler, LL.B., Lawyer, Chicago, Ill.
Volney S. Cheney, M.D., Chicago, Ill.
Sheldon L. Howard, Ill. State Reg. of V. S., Springfield, Ill.
John A. Kappelman, Capt. M.C., M.D., Chicago, Ill.
Joseph Mark Kearney, B.L., M.D., Chicago, Ill.
A. W. Werelius, M.D., Chicago, Ill.
Hubert P. Matte, Chief Sanitary Eng., Springfield, Ill.
Clara Stone, M.D., Evanston, Ill.
M. A. Wood, Chicago, Ill.
George Gwin Taylor, Springfield, Ill.
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Clarence Wilson East, M.D., Springfield, Ill.
A. A. Freedman, M.D., Chicago, Ill.
Janet Marie Colster, R.N., Chicago, Ill.
Miss Leslie L. Bliss, B.A., Welfare, Chicago, Ill.
Olive Z. DeLang, R.N., Montreal, P. Q.
Benjamin F. Simon, M.D., Bureau of Health, St. Paul, Minn.
William Alfred James, M.D., Chicago, Ill.
J. D. McGowan, Chicago, Ill.
DeVilbliss Mfg. Co., Toledo, Ohio.
Adam H. Wright, M.D., Toronto, Can.
Miss Ruth O. Pierson, Chillicothe, Ohio.
R. L. Wilson, M.D., Health Officer, Racine, Wis.
D. P. MacMillan, Ph.D., M.D., Chicago, Ill.
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BOOKS AND REPORTS REVIEWED

Dispensaries, Their Management and Development. *Michael M. Davis, Jr., Director of the Boston Dispensary and Andrew R. Warner, M. D., Superintendent of the Lakeside Hospital, Cleveland, Ohio. New York: The Macmillan Company. Pp. 438. Price, $2.25.*

Mr. Davis and Dr. Warner have produced a pioneer work in a field of increasing importance. The book is written to serve three purposes,—first, to furnish a brief account of the development and extent of dispensaries in the United States; second, to give the details of efficient management of dispensaries for the benefit of those who work in such institutions; and third, to present dispensary organization as the best working basis for efficient medical service in relation to patient, physician and the general public. Their definition of a dispensary as "an institution which organizes the professional equipment and special skill of physicians for diagnosis, treatment and prevention of disease among ambulatory patients," determines the authors' treatment of the subject in all its phases. They are not discussing the dispensary as a poor place for the giving of poor medical treatment to poor people, which it too often is, but as an efficient organization of medical facilities, adaptable to the treatment of all classes of ambulatory patients.

The book has a great value as a guide to dispensary managers and other workers in dispensaries, in matters of organization, equipment, social service, buildings, clinics, admission systems, records, follow-up, efficiency tests, finance and other operating essentials. In this connection it will do much to help establish standards of dispensary organization and service. Its greatest contribution, however, lies in its intelligent and indisputable presentation of the need for organization of a community's medical facilities for conservation of life and health. It recognizes a serious present problem in the inadequacy of the individualistic practice of medicine and is prophetic of the coming organization of medical practice to meet the health problems of all the people.

John E. Ransom.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Escaping Quarantine.—A group of "prominent citizens" had gathered for a social occasion. Men and women of intelligence were there, and honorable people, all of them, or thought they were. During the evening the subject of quarantine was discussed—and how annoying it is to be quarantined, and all that. Then the little group, or several of the group, began telling how they had avoided quarantine. They related with merriment how each had "fooled the doctors," and escaped from home and gone about their business despite the fact there were contagious diseases in the house, and they seemed to think it a good joke on the health officers that the card on the front door didn't keep them from using the back door. Not one in the group considered that he or she had done a dishonorable or a dangerous thing.

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Sickness Survey in Cotton Mill Villages.—In a comprehensive survey of disabling sickness among the population of seven cotton mill villages of South Carolina in relation to family income some interesting results have been obtained. A unique method of comparing family incomes was used, based upon the Atwater scale of food requirements. It was noted that a higher sickness rate (involving inability to work) and a greater amount of working time lost on account of such sickness were found among members of families whose incomes were low than among members of families with a more favorable economic status. Only when the income approximated $900 a year for a family of "normal" size (in 1916) did the sickness rate appear to be as low as that suggested by similar studies in a number of localities in the United States as the normal rate. Furthermore, a greater proportion of disabling illness of relatively long duration appeared among persons whose family income was below the average than among persons with a more favorable economic status.—E. Sydenstricker, G. A. Wheeler, and J. Goldberger, *Public Health Reports*, November 22, 1918, 2038. (*D. G.*)

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Weekly Health Index.—The Bureau of the Census, Department of Commerce, is publishing each week the mortality reports from the largest cities in the United States. The reports include the total number of deaths, exclusive of stillbirths, the death-rate, the number of deaths under one year, and the ratio of infant deaths to total deaths. The populations are estimated by the arithmetical method, based on federal and state censuses, and are calculated as for July 1, 1918. Wherever possible averages for the corresponding week during the past five years are given. The reader is cautioned not to make hasty conclusions in interpreting the figures since weekly rates fluctuate widely. In the weekly index of November 12, not only are the above facts recorded for forty cities having 100,000 population or more, but summaries regarding the deaths from influenza and pneumonia are given for nine weeks dating from September 14 to November 9, 1918. This was the period of the influenza epidemic. The report covers the facts obtained from forty-six large cities, located in every part of the country. (*M. P. H.*)

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Federal Health Service Demanding Tuberculosis Hospitals.—Because there will be 13,000 tuberculous soldiers and sailors in 1920, and because there are already 5,000 cases of tuberculosis among the military population, the United States Public Health Service is demanding from Congress an appropriation of $26,000,000 with which to build a chain of tuberculosis hospitals all over the country. The sum of $10,500,000 is requested immediately to take care of the existing cases. Practically all of these represent arrested cases of tuberculosis which have broken down under the strain of military activity. These cases were not detected by the local draft boards when the men were examined. It is planned to erect the hospitals on government property in the following cities: Boston, Mass.; Hill, Mass.; Chicago, Ill.; Cleveland O.; Detroit, Mich.; Evansville, Ind.; Louisville, Ky.; Norfolk, Va.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.; St. Louis, Mo.; Wilmington, N. C.; Fort Slocum, Mo.; with one in North Carolina.—*Municipal Journal*, November 16, 1918.

(*M. P. H.*)

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Pneumonia—a Problem for the Epidemiologist.—In an article on the prevention of pneumonia, Dr. Rufus Cole points out quite conclusively that despite the tendency in the opposite direction for many years, lobar and bronchopneumonia must be considered independently as they require different preventive measures. Lobar pneumonia is caused by the pneumococcus while the present indications are that bronchopneumonia is due to a hemolytic streptococcus. It is known that the pneumococcus is widely distributed in the mouths of healthy people. It is for this reason that in the past most cases of pneumonia have been attributed to lowered vital resistance which permitted the organisms already present to gain a hold. More recently, however, it

has been demonstrated that there are several types of the pneumococcus and that the types causing more than two-thirds of the cases are not found in the mouths of well people. Where physicians have made careful observations as to the spread through carriers and contacts they have been forced into the conclusion indicated, namely, that lobar pneumonia is a contagious disease and must be treated as such. Lowered resistance is, however, a factor in the prevalence of the disease. Experiments this last winter, while not productive of conclusive results, were sufficiently encouraging to warrant the continued use of vaccination against certain types.

The handling of bronchopneumonia will depend on whether the various strains of hemolytic streptococci isolated prove to be identical. If they are not identical it must be concluded that the epidemics experienced are due to some other factor than the organisms and the study of the spread of the disease will become correspondingly difficult. If, however, they are identical and are shown to be the harmless streptococci found in the throats of healthy people, the problem becomes still more difficult. Present knowledge indicates, however, that hemolytic streptococci are seldom found in normal throats and the conclusion appears justified that this also is a contagious disease and is spread by a more or less direct transfer of the infectious agent from the sick to the well. Here again it is probable as is indicated by the large number attacked after some primary infection, such as measles, that lowered vital resistance is a factor in the spread of the disease. As with lobar pneumonia it is probable that advanced knowledge will offer a preventive inoculation.

REVIEWER'S NOTE: It would appear that both forms of pneumonia offer phases that should hold the attention of health officers if the ever increasingly heavy toll exacted by these diseases is to be curbed.—*Journal A. M. A.*, August 28, 1918. (*M. T.*)

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Privy Danger.—The danger zone of the insanitary privy ranges from two hundred to four hundred yards, the average flight of the fly. In rural districts the zone commonly includes only the home to which the privy belongs and thus only five to seven people are jeopardized. The danger, however, is multiplied many fold in the case of the town privy for here the zone may include not one family but a whole block of eight or ten or more houses. This, however, is not the worst for each of the fifty or more people living in the block are within the danger zone of not the one but several privies. Still another factor in the increased danger of the privy in the city must be considered, namely, the carrier. From one to three per cent of all persons having typhoid continue to harbor and expel the germs of this disease after apparent recovery. According to the laws of probability the chances of a carrier using a privy within the danger zone of a house are eight or ten times greater in the city block with a number of persons using privies than it is in rural districts with a small number of persons using a single privy.—*N. C. Health Bulletin*, October, 1918. (*M. T.*)

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Carbon Tetrachloride as a Delousing Agent.—By pouring 25 cc. of carbon tetrachloride into a large tin can containing the complete clothing outfit of a United States Army private (purposely contaminated with lice), and keeping the can covered for two hours, it was found that the vapors of this chemical destroyed all the lice. It is suggested that this method may be used where the dry and moist heat and hydrocyanic gas are not available.—Foster, M. H., *Public Health Reports*, October 25, 1918. (*D. G.*)

✤

Sanitation in Emergency Shipyards.—At a meeting of the sanitary section of the Boston Society of Civil Engineers, W. L. Stevenson, sanitary engineer of the Shipping Board, Emergency Fleet Corporation, described the sanitary problems that confronted the Shipping Board, when the United States decided to build a large number of vessels as a necessary aid in winning the war. One of the largest problems was to supply an adequate and safe water supply for the employees. Wherever possible the regular supply of an adjoining city would be utilized. Where this was not possible, new sources of supply were obtained, and in order to insure their safety, liquid chlorine was used to disinfect the water. Another problem was to provide adequate and satisfactory means for the disposal of sewage. Wherever possible privies were abandoned and flush toilets installed. Care was taken to prevent the pollution of a drinking water supply at the sewer outfall. The proper and adequate disposal of garbage and manure was also necessary. In this way, the fly nuisance was greatly diminished and protection of the food in the restaurants effected. It was also found necessary to provide restaurants and houses for the workers. These problems were overcome with amazing rapidity and satisfaction. The restaurants were always on the cafeteria plan, and served meals throughout the day and night. The houses were individual family houses, in some cases, and dormitories in others. In many ship yards it was also necessary to combat the

mosquito nuisance. This was done essentially by cutting ditches and draining the land.

In addition to attending to the problems of sanitation, nurses were employed to render first aid, in case of injuries. A physician was always on hand to give whatever medical advice was necessary. Hospitals were also built to care for the sick and seriously injured. These hospitals were of great benefit during the epidemic of influenza-pneumonia.

C. E. Turner, sanitary engineer of the Shipping Board for the first district, told how covered buckets with a faucet near the bottom were provided in all parts of the yard, and in the hold of the ship itself, together with individual paper cups, as an emergency measure to prevent the spread of influenza among the employees, while the epidemic prevailed. Heretofore, the usual open bucket and common dipper were used to dispense water. (*M. P. H.*)

✠

Venereal Disease Statistics.—For the purpose of ascertaining the proportion of each of the venereal diseases present in the Army, records covering a period of twenty-two weeks in five camps, have been compared in the Surgeon-General's office. The cases of each disease, gonorrhea, syphilis, chancroid, have been segregated, also those of "mixed infection," that is, where more than one venereal infection was present in the same patient. The total of cases in these five camps through the period indicated, was 30,719. Of these cases 79 per cent were of gonorrhea, 13.7 per cent of syphilis, 4.9 per cent chancroid, whereas 2.4 per cent of the cases showed mixed infection.—*Social Hygiene Bulletin*, October, 1918. (*D. G.*)

✠

Treating Swimming Pools with Ozone.—The sanitation of swimming pools has been a matter of considerable difficulty for some time. This is so, because of the continuous, accumulating pollution contributed by the various bathers. Attempts to disinfect the water by keeping a germicidal substance submerged all the time, proved inefficient and undesirable. This was superseded by filtration and recirculation of the water. This process has many desirable qualifications but does not constantly maintain the purity of the water. Then hypochlorites and liquid chlorine were introducted to disinfect the water after filtration, but this method has not proved completely satisfactory for swimming pools. Copper sulphate likewise failed. Ozone, however, seems to be the most efficient and the most desirable disinfectant. The bacteria are destroyed, the organic matter in suspension and in solution is largely oxidized, the process is cheap, tastes and odors are avoided, and trained operatives are not required. The water is sterilized in a high tower through which the ozone bubbles from below. The ozone is made by passing air, dried over calcium chloride, over a silent electric brush discharge. Ozone will be produced more cheaply with an alternating current than with direct current. With alternating current, it is estimated that only two kilowatts are required to produce enough ozone to disinfect 60,000 gallons of water. At the rate of five to seven cents per kilowatt the cost of disinfection would be between eleven and fifteen cents per day.—Wallace A. Mannheimer, *Boston Medical and Surgical Journal*, November 21, 1918.

(*M. P. H.*)

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Birth Control.—The author believes that because of its far-reaching influence on the problems of poverty, overcrowding and infant mortality, birth control is of fundamental importance. The subject of birth control is very carefully studied and the effect of its use is carefully considered with regard to the health of the participants.

It is now well recognized that the fall in the birth-rate is due chiefly, if not entirely, to the volitional restriction of the size of the family, *i. e.*, to the adoption of birth control principles. Statistical evidence shows that the educated and comfortable classes have few children, of whom, under the favorable conditions provided few die; unskilled labor produces many children and loses a large proportion of them. Where the birth-rate is high, the rate of infant mortality is nearly always high also, and vice versa. Moreover it cannot be denied that large families are frequently the cause of poverty, and poverty is the great enemy of infant life. Excessive child-bearing drags a woman down and wears her out prematurely. We are coming to realize that a constitutional weakness toward tuberculosis is one most important factor determining the incidence of the disease, and that this weakness or low power of resistance may often be inherited. If properly used as it should be, birth control, by restricting the undue multiplication of the least desirable classes of the population might be a valuable eugenic instrument capable of greatly improving the quality of the race.—C. K. Millard, *Jour. of State Med.*, November, 1918. (*D. G.*)

✠

Hospitalization of Cases of Venereal Disease.—It is interesting to note that for the first time provision is to be made for the hospitalization of cases of venereal disease. There have recently been endowed two beds in the Buffalo General Hospital at Buffalo, N. Y., to be used exclusively for venereal cases.—*Social Hygiene Bull.*, October, 1918.

(*D. G.*)

Safe Milk for the Small Town.—A practical experiment for the determination of the feasibility of providing safe milk for the small town consuming 400 quarts or more has been tried at Tarboro, N. C. The first step necessitated the passage of an ordinance requiring all milk to be pasteurized. The pasteurization is to be done in a central plant owned and operated by the town, and the cost of all machinery needed for this purpose has been found be about $800. The daily milk supply of this town does not exceed 400 quarts. In addition the town proposes to do the collecting and the distributing of the milk. A bottle pasteurizer is to be used. It is not contemplated that the town will make money out of this undertaking, but will make it self-supporting. The increase in cost due to pasteurization will be offset partly by the saving effected by the abolition of overlapping milk routes and partly by the elimination of loss in collections.—K. E. Miller, *Public Health Reports*, December 13, 1918, 2213. (*D. G.*)

Treatment and Disposal of Creamery Wastes.—In an experimental investigation of the treatment and disposal of creamery wastes carried out by the U. S. Public Health Service, it was demonstrated that plain sedimentation is a satisfactory treatment preliminary to sand filtration. In this article are given the details of construction of such tank and filters and the methods of operation.—E. B. Phelps, *Public Health Reports*, December 6, 1918, 2169. (*D. G.*)

The Federal Venereal Disease Program.—The Division of Venereal Diseases in the U. S. Public Health Service was created in July, 1918, as a section to the "army bill," an appropriation of $4,000,000 was made for the campaign to control venereal diseases. This sum was made available from July 1, 1918, during two fiscal years. One million dollars was to be immediately available for state boards of health throughout the country, apportioned on the population basis. The same sum will be available on July 1, 1919, but on the condition that each state raises a sum equal to its apportionment. This condition is not imposed for 1918.

One million dollars is at once available to assist various states in caring for civilian persons "whose detention, isolation, quarantine, or commitment to institutions may be found necessary for the protection of the military and naval forces of the United States against venereal diseases."

For scientific research to discover more effective medical measures in the prevention and treatment of venereal diseases, one million dollars is appropriated; for the discovery and development of more effective educational measures in preventing venereal diseases and for related sociological and psychological research, $300,000 is appropriated. For a Division of Venereal Disease in the Public Health Service $200,000 is available.—*Social Hygiene Monthly*, October, 1918. (*D. G.*)

Antigens in the Wassermann Reaction.—In the absence of an ideal antigen the present results indicate that a proportion of weak positive reactions will be missed if only a single antigen be employed in performing the Wassermann test. Hence it is advisable always to use both antigens (heart-cholesterol and liver-lecithin-cholesterol). Since all laboratory tests are productive of the most valuable results when the clinician and the laboratory worker collaborate intimately, the desirable procedure would appear to be that, where tests are performed with only one antigen, all sera should be preserved (*e. g.*, by freezing), so that if a positive reaction fails to be obtained in cases which are clinically suspicious, the test may be repeated with the other antigen. Of course, when the reaction is being tested for the control of treatment both antigens should be employed. —C. H. Browning, and E. L. Kennaway, *Lancet*, November 30, 1918. 733. (*D. G.*)

Druggists and the Venereal Disease Campaign.—Approximately 45,000 retail druggists of the country are being asked to coöperate with the U. S. Public Health Service in its campaign to control venereal infection among the civilian population. A letter from Surgeon-General Rupert Blue is now being mailed to them, together with a pledge of coöperation. A copy of the pledge follows:

1. Not to prescribe or recommend any remedy for a venereal disease.

2. After this date not to purchase a "proprietary remedy" to be sold to the public for the self-treatment of a venereal disease, and not to sell any such "remedy" after December 1, 1918.

3. To refill only such prescriptions for the treatment of venereal disease as were given originally to the customer by a reputable physician who is still in charge of the case.

4. To cause literature furnished by the Surgeon-General to be handed to every person asking, without a physician's prescription, for a remedy customarily confined to the treatment of a venereal disease. Further, to direct the applicant to a reputable physician, to a board of health, or to an approved venereal clinic.—*Social Hygiene Monthly*, October 1918. (*D. G.*)

STATE HEALTH NOTES.

California.—A number of widely separated localities will be shocked at the news of the death in California of Edward A. Ingham, district health officer of the California State Board. Mr. Ingham was a native of Topeka, Kan., and a graduate of Washburn College. The egg investigations undertaken in Kansas by Dr. W. T. Sedgwick and his assistants attracted Mr. Ingham's interest and he came East and entered the Massachusetts Institute of Technology. Following graduation he remained as a member of the instructing staff till 1917, when he was appointed by the California board in charge of the Southern District, with headquarters at Los Angeles.

While in Boston Mr. Ingham conducted for the M. I. T. Sanitary Research Laboratory an investigation into the rural health conditions in the state of Massachusetts and the activities of local boards of health. He managed for the Public Health Committee of the Massachusetts Medical Society, a public school for health officers, the first of its kind in the state.

Mr. Ingham lost his life in performing his duties as a health officer during the influenza epidemic.

He was one of the pioneer group of sanitary engineers without medical degree in public health work, and was a conspicuous example of the new type of officer.

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Minnesota.—When the United States Government began to study its work against venereal disease, Minnesota was one of the first to enter the list. A Bureau of Venereal Diseases was established under the State Board of Health with a plan of attack which was based on four clearly defined approaches, each of which will be considered in these articles.

"In the first place, we recognized," writes Mabel S. Ulrich, Supervisor of Social Hygiene Education, State Board of Health, "that as long as public prostitution is allowed to persist unchecked, little can be done to control the spread of these diseases. Therefore, drastic repressive action against the trade is proposed. There are in this state adequate laws for such repression. Why are they not enforced? Chiefly because public opinion has not yet awakened to the need of such repression." The State authorities proceeded with education and now there are plans for caring for the evil in a scientific manner.

The Minnesota method departs from common procedure, which is to hale the prostitute into court, admit her to bail—which she frequently jumps—or to fine her or give her a suspended sentence and order her out of town. In the larger cities all cases are now held until an examination by the board of health determines whether or not they are diseased. Those found to be diseased are quarantined and treated until non-infectious. The period of quarantine is not coincident with their workhouse sentence. For this work hospital facilities have been arranged at the workhouses and special physicians employed by the boards of health. Every case needing investigation is followed up by the Social Service Department. It is the purpose of this division that men and women offenders be treated in precisely the same manner. Further than this a regulation has been adopted, which, while it makes it compulsory for every physician to report all cases coming to his attention, provides at the same time that the name of the patient need not be revealed, so long as proper care is exercised in protecting others from infection, and treatment is continued.

For the protection of others, however, the name is required the moment the patient exposes any one else or discontinues treatment. Every report is invariably regarded by the board of health as strictly confidential.

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New Jersey.—Wallace F. Eakins, 1st Lieutenant, Sanitary Corps, U. S. A., has been honorably discharged from the army and has returned to his position as epidemiologist of the New Jersey State Board of Health at Trenton.

Child Hygiene Work in the state of New Jersey has responded to the appeal given by the Federal Bureau and taken on a more practical form than it has had since its inauguration three years ago. Till now it has been conducted solely on educational lines, but actual work in consultation stations under care of physician and nurse has been begun both in some municipalities which had no Child Hygiene Division and in a few rural districts. The districts chosen are those which have the highest infant mortality rates, and this problem is being attacked as a complex and a many sided one.

In order to touch the work in this large way the State Bureau, while installing a uniform system, is trying to secure as much coöperation as possible. The way for correlation of public and private effort has been paved by the excellent work of the Child Welfare Committee of the Council of National Defense. With this body as a nucleus county committees are being formed through which the bureau and its workers may work for active coöperation and whose influence should be on their own account eventually to stimulate local government's act.

At present the money appropriated by this state admits of only ten stations and ten nurses,

but it is probable that next year the work will be done in a much larger way.

The bureau has four divisions each of which has a supervisor: nursing and consultation stations, midwifery, institutions, and education and extension.

Much attention is given to care of the expectant mother and to instruction for maternal nursing. Careful registration of births and deaths is required and the entire environment of mother and child is the subject of study. Another line will be that among children of pre-school age.

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New York State.—Major Henry L. K. Shaw has been released from active service in the Medical Corps of the Army at Fort Oglethorpe and will resume the directorship of the Division of Child Hygiene in the State Department of Health on January 1st. Dr. Herman F. Senftner, who has been acting director of the division, again becomes epidemiologist.

In November the work of the Bureau of Habit-Forming Drugs was transferred to the Narcotic Drug Control Department which was created by an act of the Legislature of 1918. The new department will operate under the provisions of the habit-forming drug law of 1917 until February 1, 1919, when that portion of the 1918 law relating to the sale, use, etc., of narcotic drugs becomes effective.

A novel use was made of school diet kitchens in Syracuse during the influenza epidemic. When Dr. Sears, state sanitary supervisor, discovered that many families were suffering from lack of food because the adults in these families were sick, appeal was made by him to the school authorities for the use of their diet kitchens. The scheme was financed by the American Red Cross. The cost per person at first was 4 cents; later when more nourishing food was required during convalescence the cost advanced to approximately 7 cents.

The Bureau of Venereal Diseases of the New York State Department of Health has outlined a comprehensive program on sex education and venereal control which is already under way throughout the state. It is planned to cover the state with an illustrated lecture, the idea being first to educate the people in regard to the seriousness of the menace which has complacently been allowed to exist unattacked, and later to conduct a campaign of sex education for the instruction of parents in order that they may be able to instruct their children properly.

It is planned to speak to mixed audiences and to mothers' clubs at a later date.

New York City.—Owing to a slight recrudescence of influenza extra effort was made by the Department to have the public continue every effort to keep this disease under control. While the relapse was expected it did not reach the figures anticipated. Special effort was made relative to having those who were recently convalescent seek medical attention in order to detect, if possible, any complication, more particularly tuberculosis. Several thousand additional circulars, relative to after-care and "don't spit" were received and distributed as a warning to citizens who might offend or disregard previous admonitions.

In the interests of public health the New York City Department has taken action relative to furnishing of heat in apartment houses, when contractual relations existed between landlord and tenant. Several thousand complaints were received, most of which were terminated by personal effort of the Department inspector. Some few, however, were referred for court action. Two of these have been heard and in each case the magistrate found the landlord guilty and imposed a fine of $100, which has had a very wholesome effect.

A number of reprints have been made by the New York health authorities:

No. 70—A Study of Poliomyelitis. Report of Work of Meningitis Division in the 1916 Epidemic. Dr. Josephine Neal and Dr. Harry Abramson.

No. 71—A Clinical Study of the Frequency of Lead, Turpentine and Benzine Poisoning in 400 House Painters. Dr. Louis I. Harris.

No. 72—Active Immunization of Infants Against Diphtheria. Dr. A. Zingher.

Those interested may receive copies of the above publications by addressing the Bureau of Public Health Education, Department of Health, New York City.

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North Carolina.—There is a bank in North Carolina that is making health and sanitary home conditions a basis of credit. The officers have reached the conclusion that a man who lives in the midst of insanitary surroundings is not a good financial risk.

"Have you a sanitary privy?"

"Is your house screened against flies and mosquitoes?"

"Have the members of your family been vaccinated against smallpox and typhoid fever?"

These are some of the questions that are asked a prospective borrower. According to the bank officers they are based on sound banking experience. A man who has not taken advantage of available opportunities to protect his own health and that of his family is not the sort of customer the bank wants.

Ohio.—The *Ohio Public Health Journal* notes (abstracts being made by M. T.) that in July, 1918, 1,012 cases of gonorrhea and syphilis were reported in Ohio while in August the reports had more than doubled, being 2,101. Sixty per cent were reported through military authorities while of the remainder 517, or another 60 per cent, were received from Akron. Of this number nearly one-half were reported not by the physician but by the druggist cooperating with the health department. Using the Akron figures as a rough basis for the reports to be expected from the rest of the state it would appear that the reporting has hardly covered one-tenth of the cases.

A study of the state statistics for 1916–1917 on inflammation of the eyes of the newborn indicates roughly that one out of every hundred babies born was reported as having inflamed eyes and that in the larger cities the ratio reported was two out of every hundred. Wide variations in the number of cases reported were evident. In general, however, the proportions were higher in cities having well organized health departments, indicating, therefore, that a low number of reported cases is more a matter for investigation than congratulation.

Proportionally a far greater number of cases were reported by midwives than physicians. Investigation, however, showed that many of the cases they reported were nothing more than the mild reaction due to the use of silver nitrate solution.

To remedy this state of affairs the State Department of Health has announced its plans which have just been set forth. The full program for the control of venereal diseases will soon be set in motion by the distribution among physicians of the state of blanks for the reporting of cases of these diseases and literature for distribution to patients.

By regulations which went into effect last July, physicians in Ohio must report venereal disease cases to the State Department of Health, with certain information regarding the patient and the source of infection. Educational literature furnished by the department must be given to each patient. Such literature is being printed in nine foreign languages, as well as in English. German is not one of the nine languages used.

The venereal disease work of the state is being aided by a Federal grant of over $51,000.

The results of the 1917 mortality statistics for Ohio when compared with those for other years are of considerable interest. The tuberculosis rate is 142.97, higher than at any time since 1911, indicating the necessity of continuing the anti-tuberculosis work with unabated vigor and the establishment of additional district hospitals. Pneumonia, both lobar and broncho, has exacted a heavy toll, the total 148.46 even exceeding that for tuberculosis. The continual increase of both forms of this disease suggests the need for closer study and more drastic preventive measures than have been had in the past. Deaths among children from diarrhea have shown an encouraging drop from 60.11 to 57.87 and it is to be hoped and expected that the 1918 Baby Saving Campaign will occasion an even greater decrease when the figures for this year are compiled. Typhoid also shows an encouraging decrease but the rate, 13.24, must be still lower before the state can be truly proud of the record.

The rates for measles and whooping cough, 10.82 and 11.69 respectively, clearly demonstrate that the old notion of "letting the child have it over with" is a procedure costly in young life. The rates for this disease falls but little behind that for diphtheria.

Organic heart disease, apoplexy, Bright's disease and arterial disease continue to show an upward trend. The first stands at the head of the list with a rate of 166.08

The figures for the first four months of Ohio's "Baby Saving Campaign" which commenced April 1st, show a saving of 857 babies. The quota for the four months was 1,503 or 646 more babies than were actually saved. These figures are given without comment.

So far as Akron is concerned health functions are coming into their own, for the new charter provides for a department of public health coördinate with the other major departments, like those of law, public service, public safety. This department of health "shall consist of a health commission consisting of five citizens appointed by the chief administrator, *i. e.*, the city manager." The powers and duties of this health commission do not differ greatly from those of similar commissions in other cities. The new feature of the charter is giving the deserved prominence and dignity to it as a formal department. Heretofore the practice has been to relegate public health to a bureau in a department.

Pennsylvania.—Dr. Francis D. Patterson, chief of the Division of Industrial Hygiene, Department of Labor and Industry, Harrisburg, Penn., is desirous of obtaining a complete list of all physicians engaged in the practice of industrial medicine. It has been the practice of this department to hold semi-annual conferences of such practitioners. In order to reach all such men, that invitations may be issued to them, it is necessary to have them on the mailing list. The next conference is set for early in 1919 so that immediate notice to Dr. Patterson with name and address, is desired.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Ab-tracted by Drs. E. R. Hayhurst, R. P. Albaugh, and P. M. Holmes.

Health of Wool Workers.—In its Research Report, No. 12, entitled, "Hours of Work As Related to Output and Health of Workers," the National Industrial Conference Board finds that so far as health is concerned, "the limited evidence available as to the effect of the adoption of the 54-hour schedule in the wool manufacturing industry on the health of the worker suggests on the whole only unimportant changes. Improvement in health conditions was noted in only a small number of cases."

This is the third in a series of investigations undertaken by the Board in the industries, the other two being in cotton and the manufacture of boots and shoes. In discussing the conditions of workers in wool there is a lack of available statistics. It is evident, however, that the industry is comparatively free from diseases that are strictly connected with it as an occupation. Anthrax, of which a good deal has been heard, has seldom been traced to the industry in this country, although there is an increasing occurrence in the industry in Great Britain. This should be a motive for adopting all possible precautions against it and preventing it from securing a foothold in this country. Incidentally it would seem that anthrax as discovered in shaving brushes in this country and in England is due to the war demand for materials, which has induced grades of raw products and materials from unusual localities to enter the trade.

In the wool industry the Board finds that the accident risk is fairly high. In the chemical end of the establishment there are a few processes, particularly carbonizing and dyeing, which involve special health hazards and undoubtedly these processes require some special consideration. So far as tuberculosis is concerned and pneumonia, a distinctly high mortality rate is indicated. These may be related to high temperatures and humidity characteristic of certain processes in the industry. Here, however, the fact must not be forgotten that race, inheritance and personal habits are in modern considerations given important place as contributory factors. Nevertheless the rates in the wool industry are sufficiently high to be worthy of attention.

The whole problem of determining the relationships between health and industrial processes is exceedingly complex. This is made more so on account of the lack of any recognized standards of measurement. From the industrial side the complications include laborious work, long hours, piece work, speeding-up, monotony, constant standing, constant strain, chairs without backs, faulty postures, jarring processes, eye strain and loud noises. So far as mill construction is concerned there are the added features of temperature, dampness, devitalized air and the like. Then again there are conditions for which the mill is not responsible, such as race, inheritance, habits, personal hygiene and climate, and again there are other factors still, that may have divided responsibility, like scale of living, housing conditions and character of recreation.

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Effective Dust Prevention.—In the manufacture of storage batteries there is danger from lead poisoning, because the plate used in the greater number of these batteries is a lead grid covered with a paste of litharge or red lead. Handling these oxides at every stage from the time the kegs are brought into the factory to the last assembling of the pasted plates, involves more or less contact with poisonous lead dusts. It is especially in the paste mixing department and in the pasting rooms, where the oxide paste is rubbed into the grids, that litharge and red lead are likely to be spread over the floors and work benches, to be tracked to and fro by the feet of passing workmen and rise into the air in the form of a fine dust.

In most storage battery factories conscientious efforts are made to do away with this evil, sometimes by vacuum cleaning, or better, by flushing the floors. An excellent method is that in use in the Willard Storage Battery Factory in Cleveland. This method was described by the plant physician, Dr. W. H. Wood, at the meeting of the National Safety Council, in St. Louis.

In such a place the problem is to find a hygroscopic salt which shall be economical, easily used, free from injurious qualities, and interfering in no wise with the processes of cleansing the shops and of reclaiming the lead from the washwater. After experimenting Dr. Wood found that a solution of magnesium sulphate would meet all the requirements and in addition it acts as a flux for the lead.

This very simple measure is so successful that it should be given wide publicity. There seems no reason why it should not have a wide range of application, not only in factories making storage batteries but in those roasting oxides, or handling dry white lead, or in the many plants where lead dross and scraps from moulding and trimming operations cover the floor.

(*A. Hamilton.*)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Experimental Study of Serum Therapy in Trichinosis.—The experiments bear out the conclusion of Schwartz (*Jour. A. M. A.* 69, 884) to the effect that serum from animals convalescent from trichinosis, when injected into other animals or fed to them mixed with trichinous meat, does not inhibit the customary development of trichinæ. However, such a serum may be of decided value in combating the toxic features of trichinosis.—M. C. Hall and Meyer Wigdor, *Arch. Int. Med.* 22, 601 (1918).

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Prevention and Cure of Gas Gangrene by Mixed Serums.—The administration of a powerful antigangrenous serum such as that of Weinberg and Séguin is of real value in preventing the incidence of gas gangrene, not replacing but assisting surgical treatment. Employed as a curative agent in cases of advanced infection it is disintoxicating if used in sufficient quantities. The polyvalent serum of Læclainche and Vallée has a marked influence on the after-history of the cases with coincident streptococcal infections. The dilution of the serum by normal saline solution and its subcutaneous administration has made anaphylactic phenomena extremely rare.—F. Ivens, *Brit. Med. Jour.*, 3016, *p.* 425 (1918).

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Standardization of the Wassermann Reaction.—Description of technic employed including standardization of antigen. The author suggests that the Wassermann reaction should be reported in terms of Wassermann units, either those described by the author or some modification thereof, the figures given by each laboratory being the same whatever the technic, and such as will indicate the number of times the serum is stronger than the weakest serum which will just give definite proof that the patient has syphilis.—W. d'E. Emery, *Lancet* (*London*), 4965, *p.* 547 (1918).

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Bacillus Influenzæ in Sinusitis and Meningitis.—The presence of Gram-negative bacilli in direct smears or on cultures from cerebro-spinal fluid or from the accessory sinuses of the respiratory tract should be looked upon as probable B. influenzæ. This is especially true when long filamentous forms are present. There are probably two types of B. influenzæ; one which retains its original short bacillary form indefinitely on artificial media and the other which readily develops filamentous forms after a few days on moist blood agar.—G. R. Lacy, *Jour. Lab. Clin. Med.*, 4, 55 (1918).

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Bacteriology of Typhus.—The author was unable to cultivate from the blood of fourteen typhus patients any bacilli resembling in the least Plotz' Bacillus typhi.—*Gac. Med. de Mexico*, No. 7-12 (1916), Pub'd. Sept., 1918; *Jour. A. M. A.*, 71, 1782 (1918).

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The Tonsils in Streptococcus Hemolyticus Carriers.—The tonsils are the principal foci of infection in throat carriers of Streptococcus hemolyticus. Cultures from excised tonsils show streptococci in 75 per cent of cases. Crypt cultures show a higher percentage of positive results than surface cultures. Excision of the tonsils renders the throat negative in nearly all cases. Excision is the only radical method of cure. The application of various germicides had no effect.—H. J. Nichols and J. H. Bryan, *Jour. A. M. A.* 71, 1813 (1918).

*

Complement Fixation Reaction for Tuberculosis.—The tubercle bacillus antigen of M. A. Wilson (*Jour. Immun.* 3, 345) is not anticomplementary in four times the amount capable of producing positive complement fixation with sera from the great majority of cases of active tuberculosis. Pooled complement from at least six guinea-pigs should be used in making the tests, or the complement from single pigs should be tested for its complement fixation value with known positive sera. Double the original Wassermann amount of patients' serum should be used. No report should be made until the sera have been tested, after having been kept under sterile conditions in the ice chest for from four to six days, preferably six days. The results seem to indicate that if these modifications are followed, the test is very reliable.—Hassow von Wedel, *Jour. Immun.*, 3, 351 (1918).

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A Prophylactic Vaccine Against Influenza.—The author describes his method of preparing vaccine from the sputum of influenzal bronchopneumonia cases. The vaccine did not contain the Pfeiffer bacillus. Pneumococcus type IV and a gram-negative bacillus predominated. The reaction is usually very slight. It is believed that the immunity lasts for a period longer than four weeks. The author

points out that the vaccine has proved its value in preventing the so-called influenza and the bronchopneumonic complications.—Warren B. Stone, *Med. Rec.*, 94, 979 (1918).

✻

Method of Preparing Bacterial Antigens.—The efficiency of a bacterial antigen is raised by the removal of the chloroform-ether soluble constituents of the dried bacteria. Standardized dry antigen preparations can be made and rendered available for work over long periods. The complement deviation reaction has limited uses in the differentiation of type within the bacterial groups studied.—James C. Small, *Jour. Immun.*, 3, 413 (1918).

✻

Meningococcus Carrier-Rate in Relation to Density of Population in Military Units—A high meningococcus carrier-rate in a military unit denotes that dangerous overcrowding exists in this unit. Severe overcrowding is usually accompanied by a carrier-rate (serological) of at least 20 per cent. The distance between beds is of paramount importance. The "peace" standard of 3 ft. between beds and 60 sq. ft. of floor space with 600 cu. ft. of air space should be adhered to if possible.—J. A. Glover, *Jour. Hyg. (Engl.)*, 17, 367 (1918).

✻

Study of Meningococci.—Fixity of type among meningococci of types I, II, III, and IV (Gordon) is not proved. Exceptions are on record and evidence is accumulating in a negative sense. The serological results obtained with type meningococci in different animals (horse, man) may entirely fail to accord with types employed as antigens. Accordingly the types differentiated in relation to the rabbit do not appear to represent independent entities.—E. W. A. Walker, *Jour. Hyg. (Engl.)*, 17, 380 (1918).

✻

Modification of Voges-Proskauer Reaction.—The use of 0.5 cc. of a 45 per cent solution of sodium hydroxide, Syracuse watch glasses, and 1 cc. of the culture results in the development of a greater number of positive Voges-Proskauer reactions in a shorter interval of time than the method given in the latest (1917) edition of "Standard Methods of Water Analysis." An incubation period of two days at 30° C. is recommended.—G. C. Bunker, E. J. Tucker and H. W. Green, *Jour. Bact.*, 3, 493 (1918).

✻

Disinfection of Diphtheria Carriers.—Insufflations of pulverized antimeningococcic serum disinfect the carriers of diphtheria bacilli just as rapidly as insufflation of powdered antidiphtheritic serum. These two methods are distinctly better than the antiseptic method. The powdered serums may act simply in a mechanical way, as an inert powder by irritating the mucosa, producing a hyperemia and drawing leucocytes to the surface.—J. Roskam, *Amm. Inst. Past.*, 32, 255 (1918); *Chem. Abst.*, 12, 2362 (1918).

✻

Tear Sign of Death.—Tears have an alkaline reaction in the living, as shown by positive tests upon more than 2,000 persons, 141 of whom had various eye inflammations. After death the reaction veers to acid. A piece of litmus paper is placed upon the eyeball and the lid pressed lightly down upon it in making the test.—A. Lecha-Marzo, *Arch. Med. Belges*, 71, 271 (1918); *Jour. A. M. A.*, 71, 1009 (1918).

✻

Complement Fixation in Tuberculosis.—The technic of the reaction including preparation of antigen is described. Not all guinea-pigs' serums are efficient for tuberculosis complement fixation. The serum from each guinea-pig should be tested for fixability with tuberculosis serum before pooling the complement for diagnostic tests.—M. A. Wilson, *Jour. Immun.*, 3, 345 (1918).

✻

Gram-Staining of Bacteria—A review of work previously done to explain the Gram-staining reaction.—Ernst Deuzen, *Z. Hyg.*, 85, 235 (1918).

✻

Pathologic Anatomy of Rabies.—The filtrability of rabies virus seems to disprove any assumption as to the Negri bodies being the parasite of rabies. It is possible that the spores might pass through the filter. The author declares that the time has come for revision of the problem of filtrable pathogenic viruses.—I. L. Apphatie, *Anales Inst. Modelo Clin. Med. (Buenos Aires)*, 3, 73 (1918).

✻

Media for Isolation of B. Influenzæ.—For the isolation of *B. influenzæ* trypsinized blood-agar is used. In a series of test tubes, containing 8 cc. of sterile normal saline solution to which has been added 0.25 per cent of anhydrous sodium carbonate, is placed 0.5 cc. of sterile trypsin. The tubes are incubated to test sterility, and, if sterile, 2 cc. of blood are added to each. The tubes are then placed in the incubator and shaken from time to time until the blood is completely digested and of a brown color.

For the purpose of growing the *B. influenzæ* in subcultures this medium is excellent, but for the purpose of isolation the blood must be digested for a longer period, as it is only after 10 to 14 days' incubation that the medium will be found to have developed its full inhibitory properties as regards the growth of other bacteria.

Trypsinized blood medium has the disadvantage, however, that the influenza bacillus tends to die out on it very easily. For the purpose of keeping the strains going the author found pigeon's blood-agar most suitable. Pigeon's blood is added to sterile distilled water in the proportion of 1 to 10 and then 1 cc. of a sterile ¼ per cent solution of anhydrous sodium carbonate is added. The agar is prepared by adding 1 cc. of this laked blood to 5 cc. of melted agar.

Altogether 56 unselected cases have been examined and from these the bacillus of influenza was recovered on 42 occasions (75.0 per cent.).—McIntosh, J. *Lancet*, Nov. 23, 1918, 695.

(*D. G.*)

✱

Failure of an Influenza Vaccine.—The bacterial vaccine was furnished by the Chicago Health Department. It was a mixed vaccine containing *B. influenzæ*, pneumococci (all four types), *Streptococcus hemolyticus* and *Staphylococcus pyogenes aureus*. The persons vaccinated were patients at a California institution for the insane; 780 people, all of whom were aged 41 or less, were selected for this experiment. One half of this number were vaccinated. The vaccination was completed November 15, and fortunately the institution remained free from influenza until November 26, when cases began to appear, although at this time the epidemic had almost disappeared from the community at large. Of the vaccinated group, 119 developed influenza and 23 pneumonia; of the not-vaccinated, 103 developed influenza and 17 pneumonia. It appears clear from the evidence afforded by these observations that no protection was afforded by the vaccine.—G. W. McCoy, V. B. Murray and A. L. Teeter, *Jour. A. M. A.*, 71, 1997 (1918).

✱

A Selective Medium for B. Influenzæ.—An attempt has been made to develop a medium that would prevent the growth of most bacteria present in throat cultures or sputum other than *B. influenzæ*. The medium recommended for the purpose has the following formula:

Agar	94 cc.
2 per cent sol. sodium oleate	5 cc.
Suspension of red blood cells	1 cc.

Oleate-hemoglobin bouillon may be prepared in the same way by substituting broth in the place of agar in the foregoing formula. Cultures taken from the nasopharynx should be streaked on the surface of the oleate-hemoglobin medium. Similar plates should also be made from the sputum. All culture plates should be incubated for 48 hours at 37° C. The use of this medium has led to an increase in the percentage of positive findings of *B. influenzæ* in actual cases of the disease and in convalescents. Pneumococci, streptococci of the hemolytic and viridans variety fail to develop on this medium.—O. T. Avery, *Jour. A. M. A.*, 71, 2050 (1918).

✱

Citrated Blood in the Treatment of Influenza Pneumonia.—The use of citrated blood from convalescent influenzal patients administered to patients when pneumonia followed the influenza appeared to have a decided beneficial effect, particularly if given early. Beyond the third day of the pneumonia it was of little value. That the citrated blood establishes an immunity to *B. influenzæ* is inferred but not proved.—W. W. G. Maclachlan and W. J. Fetter, *Jour. A. M. A.*, 71, 2053 (1918).

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Method for Isolation and Identification of Dysenteric Bacilli.—Fresh specimens preferably containing blood and mucus should be cultivated promptly. Mediums for the isolation of dysenteric baccilli should not have a marked alkaline reaction or an excessive amount of inhibitive dyes. Mediums neutral or only slightly alkaline are most suitable. Veal infusion agar is a much more satisfactory base for differential plate cultures for the isolation of dysenteric bacilli than is beef infusion or peptic digest agar. Eosin-methylene blue and modified Endo plates (P_H^+ 7.6 to 7.8) made with veal agar exert little or no inhibitive effects and permit the colonies to grow to almost twice their size on other mediums. Since the dye medium is apt to be somewhat inhibitive for the Shiga type of dysentery bacillus, it should always be used together with a modified Endo plate. The method given permits a presumptive and confirmatory diagnosis of bacillary dysentery in a very short time.—I. J. Kligler and P. K. Olitsky, *Jour. A. M. A.*, 71, 2126 (1918).

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Typhus Fever.—The Weil-Felix agglutination test is an invaluable aid in the diagnosis of typhus fever. Frequently the reaction appears only in the disease and as a rule rapidly increases in titre. A rapid agglutination in a dilution of $^1/_{10}$, while not absolutely reliable, is sufficiently suspicious to justify the isolation of the case. This is especially true of individuals uninoculated with T. A. B. or cholera. The serum of 50 uninoculated natives failed to give a reaction even in a dilution of 1 to 10. This test is particularly valuable in the case of natives in whom it may be difficult to distinguish clinically between severe relapsing fever and typhus. The organism employed in the agglutination test is a strain known as X 19. A description of the organism is given.—C. M. Craig and N. H. Fairley, *Lancet*, No. 4960, p. 385 (1918).